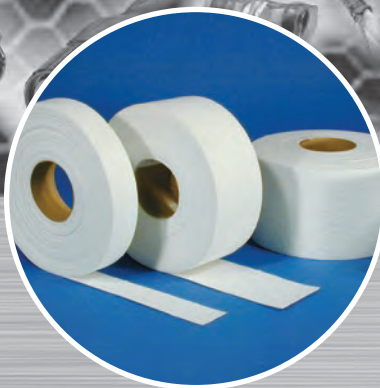
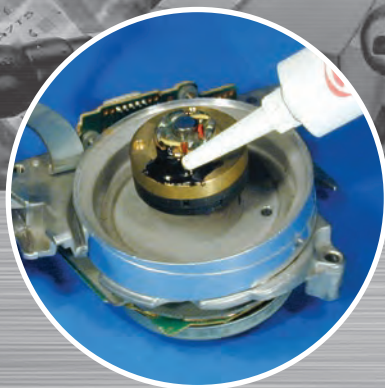


up to 3,000°C

**COTRONICS®**

**High Temperature**

**Adhesives, Fillers, Coatings, Tapes & Cloths**



**SPECIALITY HIGH TEMPERATURE ADHESIVES**



**Epoxy Compounds**

**Ceramic Compounds**

**Flexible Tapes, Cloths**

**Machinable, Castable**

**Miscellaneous**



**Ultra High  
Temperature  
Adhesives**

***Adhesives, Fillers, Coatings,  
Tape, Cloths and Blankets***

**EPOXY** compounds  
operating temperatures  
up to **340°C**

Extensive Range of SPECIALITY  
COMPOUNDS for Electrical,  
Structural and Industrial  
Applications



Aerospace



Defence



Energy





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**CERAMIC** compounds  
operating temperatures  
up to **3,000°C**



Industrial



Mass Transit



Motorsport

We provide a range of high performance adhesives, fillers, coatings, tapes and cloths designed for operation under the harshest environmental conditions. Ideally suited for insulating and bonding to an extensive range of materials, including metals, ceramics, plastics and glass, with the majority offering the advantage of curing at room temperature.

Found across many industries including Aerospace, Industrial, OEM Electronics, Fabrication and Foundries, with an extensive range of applications covering bonding, potting, sealing, casting, moulding and coating.

For whatever the application demands, be it sustained high temperature operation, thermal shock stability, corrosion, abrasion and/or chemical resistance while maintaining excellent electrical and mechanical performance characteristics, we have a solution.

- **Duralco® High Temperature Epoxies**  
Bonding and Filling to +340°C
- **Resbond® High Temperature Ceramics**  
Adhesives, Fillers and Coatings to +3,000°C

## Bonding Adhesives, Potting Compounds and Conductive Epoxies

A comprehensive range of products offering the ability to choose the material that most closely matches the specific details of your application. The details would include the temperature range, electrical and thermal properties, thermal expansion, viscosity, hardness and any process limitation that you may have (eg. cure procedures). The table below represents the most popular compounds with additional details and choices outlined within this guide.

EPOXY compounds  
operating temperatures  
up to **340°C**

Features	Conductive		Room Temperature Cure				Thermal Cure			Machinable		Single
Product Ref	120	132IP	4461IP	4525IP	4538	7050	4460	4700	4703	4540	454	4420
Properties	Super electrically conductive	Highly thermally conductive	Low viscosity adhesive	Electrically resistant, general purpose	Super flexible, stress free adhesive	Nylon bonder, bonds most plastics	Hi-Temp. Low viscosity	Hi-Temp adhesive and casting	Ultra temp. tooling repairs	Liquid metal. Casting and repairs	Non-sag putty, adhesive	One component structural
Max Temp. (°C)	260	260	260	260	230	205	315	315	340	260	260	230
Colour	Silver	Silver	Amber	Black	Tan	Black	Amber	Black	Black	Silver	Silver	Grey
Viscosity (cps)	25,000	36,500	600	25,000	10,000	20,000	600	40,000	50,000	30,000	100,000	Paste
Density (gm/cc)	3.8	1.8	1.1	1.7	1.0	1.3	1.1	1.8	1.8	1.9	1.9	1.2
Hardness (Shore 'D')	70	75	90	90	60-80(A)	70	90	94	95	80	80	75
Tensile Strength (psi)	6,500	7,200	9,500	10,000	6,000	5,000	10,300	11,100	11,800	10,000	10,000	7,000
Thermal Conductivity (W/m°C)	7.2	5.7	0.57	1.9	1.0	0.65	0.57	1.9	2.6	5.0	5.0	1.2
Thermal Expansion (x10 <sup>-5</sup> /°C)	5.4	8.0	5.4	3.3	6.0	4.8	6.4	6.4	6.8	8.0	8.0	4.5
Dielectric Strength (kV/mm)	n/a	3.9	17.55	17.55	17.55	15.6	19.5	21.45	17.55	3.9	3.9	15.6
Volume Resistivity (ohm-cm)	0.00008	10 <sup>6</sup>	10 <sup>13</sup>	10 <sup>15</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>10</sup>	10 <sup>8</sup>	10 <sup>10</sup>	10 <sup>10</sup>
Thermal Stability % (1000hr @ 200°C)	0.2	0.2	0.2	0.05	0.5	0.5	0.1	0.1	0.02	0.5	0.5	0.6
Heat Distortion (°C)	210	210	210	210	75	75	260	300	320	225	200	175
Elongation (%)	0.2	0.2	5.0	2.0	12-100	3.0	5.0	2.0	2.0	1.2	1.2	1.5
Shrinkage (% max.)	0.2	0.8	0.8	0.2	0.8	0.8	0.5	0.2	0.1	0.1	0.2	0.3
Moisture Absorption (% 30 days)	0.2	0.2	0.15	0.1	0.5	0.2	0.1	0.02	0.15	0.2	0.2	0.5
Mix Ratio (by weight)	100:3.4	100:8	100:17	100:8	100:120	100:10	100:80	100:28	100:22	100:9	100:11	n/a
Working Time for 25 gms. (Mins. @ 24°C)	30	30	30	30	90	30	n/a	n/a	n/a	30	30	n/a
Cure (Hr. @ 24°C)	16-24	16-24	16-24	16-24	16-24	4-16	n/a	n/a	n/a	16-24	16-24	n/a
Cure (Mins. @ 120°C)	7	5	5	5	60	1-2 hrs.*	4 hrs.	4 hrs.	4-6 hrs.	8	10	30
Page Number	4	5	6	7	7	11	6	8	8	9	9	10

\* Temperature @ 93°C



## Duralco® 12x Series

### 340°C Electrically Conductive Adhesives

Duralco® Conductive adhesives and potting compounds provide the conductivity required for many high temperature electronic and industrial applications.

These high temperature adhesives combine unique resins and hardeners with speciality conductive fillers to provide continuous service up to 340°C.

They will bond to glass, ceramics, metals and plastics as well as offering excellent resistance to most chemicals and solvents.

#### Applications Include:

Bonding printed circuit boards, solder replacement, semi-conductor bonding, emi shielding, electronics, circuit board repair etc.

“Duralco 120 was used for an application at 200°C for over 12 months with no degradation in electrical conductivity.”

“Duralco 120 successfully bonded busbars and carried a current of 2400 amps for a short term test.”

“Duralco 120 bonds sputtering targets to copper based plates and provides 100°C continuous service.”

“Duralco 124 provided a conductive bond for over 6 months at 343°C.”

#### Duralco 120 • 260°C Silver Based

A Silver filled epoxy that cures at room temperature to form electrically conductive bond lines for use up to 260°C. Contains over 70% ultra fine active Silver to provide the ultimate in electrical conductivity, with resistance of 0.00008 ohm-cm being reported in independent tests. Ideal for attaching heat sensitive components and as a solder replacement.

#### Duralco 122 • 260°C Nickel Based

This Nickel filled adhesive and casting epoxy was specially formulated to provide an economical alternative to Silver filled, electrically conductive epoxies. For use where the upmost in electrical conductivity performance is not important.

#### Duralco 124 • 340°C Ultra Temp. Silver Based

A Silver filled adhesive for High Power applications. Just mix and cure with mild heat for very high temperature withstand.

#### Duralco 125 • 232°C Flexible, Silver Based

Easy to use “one to one” applicator kit. Just dispense, mix and apply this smooth creamy paste and cure at room temperature. Bonds to most metals, ceramics and plastics to form stress free, electrically conductive bonds.

#### Duralco 126 • 232°C One Component, Silver Filled

Single part, highly conductive epoxy specifically designed for production applications. No mixing, no mess, just dispense and heat cure. Commonly used in automatic dispensing equipment.

#### Duralco 127 • 204°C Graphite Based

Easy to use, “one to one” applicator kit. Just dispense, mix and apply. This smooth creamy paste cures at room temperature and is ideal for low cost production applications. Can be used in automatic dispensing equipment.



Features	Hi-Conduct.	Low Cost	Hi-Temp.	Flexible	Single Part	Low Cost
Product Ref	120	122	124	125	126	127
Major Constituent	Silver	Nickel	Silver	Silver	Silver	Graphite
Max Temp. (°C)	260	260	340	232	232	204
Volume Resistivity (ohm-cm)	0.00008	0.7	0.002	0.002	0.002	0.02
Thermal Conductivity (W/m°C)	7.2	2.16	7.2	5.76	7.2	3.6
Viscosity (cps)	25,000	25,000	20,000	50,000	15,000	50,000
Cure Cycle (hours @ 25°C)	16 - 24	16 - 24	4 hrs @ 120°C	16 - 24	30 mins. @ 135°C	16 - 24
Cure Cycle (@ 95°C)	10 mins.	10 mins.	n/a	20 mins.	10 mins. @ 165°C	20 mins.
Colour	Silver	Silver	Silver	Silver	Silver	Black
Number of Components	2	2	2	2	1	2
Size (ounces)	2	4	2	1	2	2.5

## Duralco® 13x Series

### 315°C Thermally Conductive Adhesives

Duralco® Thermally Conductive adhesives and potting compounds provide the heat dissipation required for many high temperature electronic and industrial applications.

These high temperature adhesives combine unique polymer systems and special thermally conductive fillers to provide continuous service up to 315°C.

Duralco conductive adhesives have excellent adhesion to glass, ceramics, metals and plastics.

#### Applications Include:

Removing the heat generated in many electronic applications including semi-conductors, rectifiers, high power devices, etc.

Heat transfer applications, including bonding copper coils to reaction vessels for heating and/or cooling.

Fabrication of heated, plastic forming tools and moulds.

“Duralco 132 dissipates heat in a semi-conductor device.”

“Duralco 132 transfers the heat generated in high power devices and provides for efficient cooling.”

“Duralco 132 bonds copper coils to vessels for rapid heating and cooling in a critical chemical process.”

“Duralco 134 replaced silicone based grease in manufacturing of high end digital cameras.”

## Duralco 128 • 260°C Ceramic Based

A highly thermally conductive, electrically resistant adhesive and potting compound. The ceramic fillers are carefully chosen to provide high thermal conductivity and high dielectric strength. Just mix the resin and hardener, apply and cure at room temperature. Curing may be accelerated with mild heat.

## Duralco 132IP • 260°C Aluminium Based

An Aluminium metal filled epoxy that cures at room temperature, to form machinable, thermally conductive bond lines. Provides the maximum heat transfer available in a 260°C epoxy system. Can also be supplied as a non-sag putty, Duralco 132P, for heat tracing applications

## Duralco 133 • 315°C Aluminium Based

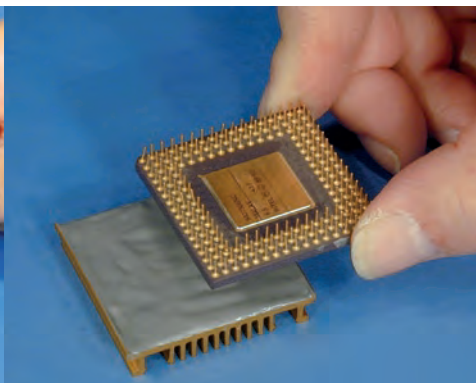
A heat curing Aluminium filled epoxy that combines the excellent properties of Duralco 132 with higher temperature compounds, making it suitable for applications requiring up to 315°C service. Forms thermally conductive bond lines and heat transfer medium. Duralco 133 is suitable for high temperature tooling, is readily machinable, ideal for all kinds of repairs and also as a construction material.

## Duralco 134 • 260°C Ceramic Based Grease

A non-hardening, electrically insulating and thermally conductive grease. Ideal for use between components and heat sinks. Retains its paste like consistency, enabling parts to be easily removed and replaced. Will not dry out even after long periods of time.

## Duralco 135 • 260°C Aluminium Based Grease

Filled with an ultra fine Aluminium metal powder to provide the maximum possible heat transfer rate in a non-hardening grease. Commonly used in many industrial applications where electrical resistance is not critical.



Features	Hi-Elec. Resistance	High Conductivity	High-Temp.	Elec-resistant	Therm-conductive
Product Ref	128	132IP	133	134	135
Major Constituent	Ceramic	Aluminium	Aluminium	Ceramic	Aluminium
Max Temp. (°C)	260	260	315	260	260
Volume Resistivity (ohm-cm)	10 <sup>15</sup>	10 <sup>5</sup>	10 <sup>6</sup>	10 <sup>16</sup>	n/a
Thermal Conductivity (W/m°C)	4.32	5.76	5.76	5.04	5.76
Viscosity (cps)	15,000	36,500	36,500	Grease	Grease
Colour	Tan	Silver	Silver	Tan	Grey
Number of Components	2	2	2	1	1
Mix Ratio	100:21	100:8	100:30	n/a	n/a
Cure Cycle (hrs. @ 25°C)	16 - 24	16 - 24	4 hours @ 120°C	n/a	n/a
Cure Cycle (minutes @ 120°C)	20	5	240	n/a	n/a

## Duralco® 4461IP

### 260°C Ambient Cure Adhesive

Duralco® Low Viscosity adhesives are formulated to provide the ultimate in high temperature, chemical, electrical and moisture resistance.

Duralco 4461IP is a free flowing liquid adhesive that is ideal for forming ultra thin bond lines, impregnating, coating and encapsulating applications, as well as having excellent adhesion to the likes of metals, plastics, ceramics and glass.

Curing at room temperature, 4461IP can be used up to 260°C making it an ideal choice for high temperature applications in electronics, optics and instrumentation.

Also available in pre-measured kits containing ten measures of both resin (in pots) and hardener (in syringes).

#### Ordering Information (note: US measures):

4461IP-1	Pint trial kit
4461IP-2	Gallon kit
4461SS-1	Slow setting Pint trial kit
4461SS-1	Slow setting Gallon kit

Also available as twin pack cartridges or pre-measured kits of 10g or 25g, see page 12 for more information.

“Fibre optic cables consisting of 3,000 strands were encapsulated and bonded with **4461** in a 1/8” stainless steel tube. The low viscosity of **4461** enabled full penetration in and around the fibre strands”

“**4461IP** bonds optical components and protects them from moisture absorption and transmission.”



Properties	4461IP
Volume Resistivity (ohm-cm)	10 <sup>13</sup>
Thermal Conductivity (W/m°C)	0.57
Thermal Expansion (10 <sup>-5</sup> / °C)	5.4
Viscosity (cps)	600
Tensile Strength (psi)	9,500
Thermal Stability (1000 hrs)	0.20% @ 200°C
Hardness (Shore D)	90
Dielectric Strength (kV/mm)	17.55
Moisture Absorption (30 days %)	0.15
Components / Colour / Mix Ratio	Two / Amber / 100:17
Cure Cycle (hrs. @ 25°C)	16 (or 5 mins @ 120°C)

## Duralco® 4460

### 315°C Thermal Cure Adhesive

Duralco 4460 low viscosity, liquid adhesive forms ultra thin bond lines and is ideal for impregnating, coating and encapsulating.

4460 has the chemical electrical and radiation resistance that is often required in critical applications. This unique polymer system can be used up to 315°C after a heat cure at moderate temperatures.

Commonly found in aerospace, electronic, appliance, instrumentation and equipment applications.

Duralco epoxies offer high bond strength, high temperature, stability, low moisture absorption and low shrinkage. No volatiles, low odour and no VOC's.

#### Ordering Information (note: US measures):

4460-1	Pint trial kit
4460-2	Gallon kit

Also available in pre-measured kits of 10g or 25g, see page 12 for more information.

“**4460** penetrated tightly wound wire coils for an electronic high temperature application.”

“Transducers bonded with 0.0005 inch layer of Duralco **4460** and provided strengths of 2000 psi at 200°C.”



Properties	4460
Volume Resistivity (ohm-cm)	10 <sup>14</sup>
Thermal Conductivity (W/m°C)	0.57
Thermal Expansion (10 <sup>-5</sup> / °C)	5.4
Viscosity (cps)	600
Tensile Strength (psi)	10,300
Thermal Stability (1000 hrs)	0.10% @ 200°C
Hardness (Shore D)	90
Dielectric Strength (kV/mm)	19.50
Moisture Absorption (30 days %)	0.10
Components / Colour / Mix Ratio	Two / Amber / 100:80
Cure Cycle (hrs. @ 120°C)	4



## Duralco® 4525IP

### 260°C Electrically Resistant Adhesive

Easy to use, just mix and apply. No volatiles, solvents or out-gassing. Duralco® 4525IP will cure at room temperature to provide high bond strength, high temperature stability, low shrinkage, excellent chemical, electrical and radiation resistance and low moisture absorption.

It maintains its high electrical resistance over long periods of time and has the lowest moisture absorption when compared to 23 commercially available epoxies.

Duralco 4525IP is ideal for high performance bonding, potting, sealing, repairs, castings and jigs and can be used to form protective coatings. Often found in electronics, appliances, instrumentation, motors and equipment.

Available in pre-measured kits containing ten measures of both resin (in pots) and hardener (syringes), as well as twin pack cartridges.

#### Ordering Information (note: US measures):

4525IP-1 Pint trial kit

4525IP-2 Gallon kit

Also available as twin pack cartridges or pre-measured kits of 10g or 25g, see page 12 for more information.

“Used to seal thermocouples, electric heaters and critical electronic components for use in high humidity environments. Tests show less than 10% of the moisture transmission of silicones or competitive epoxies.”

“Used for fabricating end seals and installation of pressure, strain gauges and flow measuring instruments.”



Properties	4525IP
Volume Resistivity (ohm-cm)	10 <sup>15</sup>
Thermal Conductivity (W/m°C)	1.87
Thermal Expansion (10 <sup>-5</sup> / °C)	3.3
Viscosity (cps)	25,000
Tensile Strength (psi)	10,000
Thermal Stability (1000 hrs)	0.05% @ 200°C
Hardness (Shore D)	90
Dielectric Strength (kV/mm)	17.55
Moisture Absorption (30 days %)	0.05
Components / Colour / Mix Ratio	Two / Black / 100:8-12
Cure Cycle (hrs. @ 25°C)	16-24

## Duralco® 4538

### 230°C Super Flexible Adhesive

The ideal solution for applications requiring the ultimate in thermal shock and vibration resistance, sound absorption and excellent adhesion to dissimilar substrates.

This completely variable system can be tailored to meet any application requirement by varying the mix ratio of resin to hardener, resulting in the exact degree of flexibility required.

Easy to use. Just choose the desired mix ratio, mix to uniform colour and apply. Duralco® 4538 has excellent adhesion to most plastics, metals, ceramics, glass, rubber and even treated Teflon® and cures at room temperature without any objectionable odours.

Outstanding chemical resistance, high bond and peel strength, thermal shock and mechanical resistance.

#### Ordering Information (note: US measures):

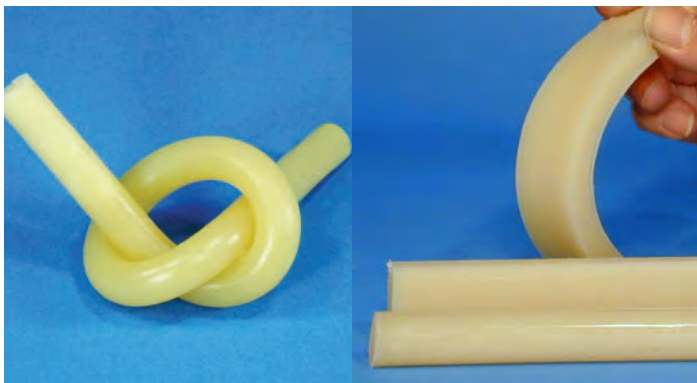
4538-1 Pint trial kit

4538-2 Gallon kit

Also available in pre-measured kits of 10g or 25g, see page 12 for more information.

“Bonds: Zytel® 101, Victrex®, Poly-Phenylsulfone, Nylon, Poly-Carbonates, Phenolics and other difficult materials. Successfully bonds a Teflon® housing to a ceramic bushing and ceramic magnets to a plastic holder.”

“Encapsulates stress free potting of delicate electronic assemblies for severe thermal shock environments.”



Properties	4538
Volume Resistivity (ohm-cm)	10 <sup>14</sup>
Thermal Conductivity (W/m°C)	1.00
Elongation %	12-100
Viscosity (cps)	10,000
Tensile Strength (psi)	6,000
Thermal Stability (1000 hrs)	0.5% @ 200°C
Hardness (Shore A)	60-80 Variable
Dielectric Strength (kV/mm)	17.5
Moisture Absorption (30 days %)	0.5
Components / Colour / Mix Ratio	Two / Tan / 100:120
Cure Cycle (hrs. @ 25°C)	16-24



## Duralco® 4700

### 315°C High Temperature Adhesive

Duralco® 4700 adhesive and casting compound provides 315°C service with the convenience of conventional epoxy processing. User friendly, with no volatiles, solvents or out-gassing. Simply mix the resin and hardener then cure at 120°C.

Offers excellent adhesion to metals, glass, ceramics and most plastics. It offers high electrical resistance, low moisture absorption, high temperature stability, high bond strength, low shrinkage and excellent chemical, solvent and radiation resistance.

Ideal for sealing electrical connections, high performance bonding, potting and repairing in automotive, aerospace, chemical and laboratory applications.

#### Ordering Information (note: US measures):

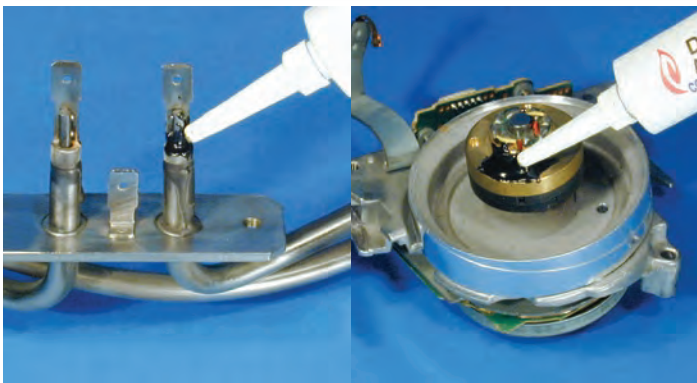
4700-1 Pint trial kit

4700-2 Gallon kit

Also available in pre-measured kits of 10g or 25g, see page 12 for more information.

“4700 successfully repaired cracks in pipes carrying hot oil at 250°C and at 1000psi.”

“Seals and protects electrical feedthroughs against high heat and moisture.”



Properties	4700
Volume Resistivity (ohm-cm)	10 <sup>14</sup>
Thermal Conductivity (W/m°C)	1.87
Thermal Expansion (10 <sup>-5</sup> / °C)	3.7
Viscosity (cps)	40,000
Tensile Strength (psi)	11,100
Thermal Stability (1000 hrs)	0.1% @ 200°C
Hardness (Shore D)	94
Dielectric Strength (kV/mm)	21.45
Moisture Absorption (30 days %)	0.02
Components / Colour / Mix Ratio	Two / Black / 100:28
Cure Cycle (hrs. @ 120°C)	4

## Duralco® 4703

### 340°C High Temperature Adhesive

Duralco® 4703 adhesive and casting compound provides 340°C service plus the ultimate stability and strength in high temperature environments. It is user friendly with no volatiles, solvents or out-gassing. Simply mix the resin and hardener then cure for 2 hours at 120°C followed by 4 hours at 175°C.

Excellent adhesion to metals, glass, ceramics and most plastics, retaining over 85% of its tensile bond strength after 1,000 hours of service at 260°C.

Offers excellent resistance to most chemicals, solvents, acids and is easily machined to close tolerances. Applications include repairing and rebuilding worn or cracked composites, dies, fixtures, jigs etc.

#### Ordering Information (note: US measures):

4703-1 Pint trial kit

4703-2 Gallon kit

Also available in pre-measured kits of 10g or 25g, see page 12 for more information.

“Bond strengths of over 3,000 psi are obtained at room temperature and 1,200 psi at 260°C.”

“4703 seals high performance thermocouples for use in high temperature corrosive environments.”



Properties	4703
Volume Resistivity (ohm-cm)	10 <sup>10</sup>
Thermal Conductivity (W/m°C)	2.60
Thermal Expansion (10 <sup>-5</sup> / °C)	3.9
Viscosity (cps)	50,000
Tensile Strength (psi)	11,800
Thermal Stability (1000 hrs)	0.02% @ 200°C
Hardness (Shore D)	95
Dielectric Strength (kV/mm)	17.55
Moisture Absorption (30 days %)	0.15
Components / Colour / Mix Ratio	Two / Black / 100:22
Cure Cycle (hrs. @ 120°C/175°C)	2 / 4

## Duralco® 4540

### 260°C Liquid Metal

Duralco® 4540 is a pourable Aluminium metal filled epoxy that offers outstanding adhesion, ductility, thermal conductivity and shock resistance. Just mix and apply. No solvents. No outgassing. Either room temperature or thermal cure cycle. Has excellent resistance to chemicals and solvents.

Commonly used for high performance bonding and repair in appliances, aerospace, automotive, electronics, instrumentation, motors, chemical processing equipment etc.

#### Ordering Information (note: US measures):

4540-1 Pint kit

4540-2 Gallon kit

Also available as twin pack cartridges or pre-measured kits of 10g or 25g, see page 12 for more information.

“4540 was used to cast integrally heated moulds for injection moulding of plastic parts. 4540’s high thermal conductivity and durability resulted in highly detailed parts with exceptional wear resistance.”

“454 bonds brake pads to aluminium metal assemblies and maintains 1000 psi bond strengths at 230°C.”

“7056AL unique fast setting, machinable epoxy makes repairs easy without the odour of a 5 minute epoxy or the adhesive migration obtained when working with cyanoacrylates.”

## Epoxy-Eez® RK454 and RK456

### 260°C Metallic Putties

Duralco® RK454 and RK456 are ideal for patching leaky pipes, valves and fittings, repairing machinery and equipment, plus re-building worn shafts and housings. Smooth creamy putty that cures at room temperature to form a highly machinable, aluminium or stainless steel based composites.

RK454 offers machinability/thermal conductivity, RK456 offers corrosion resistance. Repair kit contains 2.5 oz resin, 0.6 oz hardener, sandpaper, mixing sticks and reinforcement screen.

#### Ordering Information (note: US measures):

RK454 (Aluminium) Repair kit

RK456 (Stainless) Repair kit

## Bond-IT® 7056AL

### 230°C Instant Metal

Duralco® 7056AL is a unique super fast setting, machinable repair epoxy. Dispensed via a hand held, side by side dispenser tube, it will not drip or sag when applied and will cure in 4-8 minutes at room temperature.

Bond-IT has excellent adhesion to smooth, rough or porous surfaces, most plastics, metals, ceramics, glass, wood and cures to form a hard, durable, machinable epoxy that can be machined, tapped or drilled.

#### Ordering Information:

7056AL-1 2 oz Applicator kit

7056AL-2 8 oz Applicator kit



Properties	4540	RK454	RK456	7056AL
Volume Resistivity (ohm-cm)	10 <sup>8</sup>	10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>8</sup>
Thermal Conductivity (W/m°C)	5.0	5.0	1.73	2.88
Thermal Expansion (10 <sup>-5</sup> / °C)	4.1	4.1	-	6.12
Viscosity (cps)	30,000	Putty	Putty	40,000
Tensile Strength (psi)	10,000	10,000	12,000	10,000
Thermal Stability (1000 hrs)	0.5% @ 200°C	0.5% @ 200°C	-	0.3% @ 200°C
Hardness (Shore D)	80	80	-	65
Dielectric Strength (kV/mm)	3.9	3.9	-	3.9
Moisture Absorption % (30 days)	0.2	0.2	-	0.5
Components / Colour / Mix Ratio	Two / Silver / 100:9	Two / Silver / 100:11	Two / Silver / 100:6	Two / Silver / n/a
Cure Cycle (hrs. @ 25°C)	4-16	16-24	16	4-8 minutes



## Duralco® 126

### 230°C Electrically Conductive Adhesive

Duralco® 126 conductive adhesive is a single component, highly conductive epoxy specifically designed for production applications. No mixing, no mess, just dispense and heat cure. Unique resins and hardeners with speciality conductive fillers provide continuous service up to 230°C.

Will bond to glass, ceramics, metals and plastics. Applications include solder replacement, semi-conductor bonding, electronics, circuit board repair etc.

#### Ordering Information:

126-1 2 oz Jar

## Durabond® 455

### 230°C Thermally Conductive Adhesive

Duralco® 455 is filled with ultra fine active Aluminium for high temperature stability, thermal conductivity and thermal shock resistance. Bonds to most metals, plastics, high performance composites, glass and ceramics. No measuring, no mess, no odours or solvents and faster cures at moderate temperatures.

Typical applications include high performance bonding and assembling in appliances, aerospace and automotive. Bonds dissimilar metals and eliminates the need for brazing.

#### Ordering Information:

455-1 11 oz Dispenser tube

## Duralco® 4420

### 230°C Electrically Resistant Adhesive

Duralco® 4420 is ceramic filled and offers excellent electrical properties. Adheres to materials such as ceramics, glass, metals, plastics and mica. Will bond dissimilar materials and has excellent resistance to solvents, fuels, lubricants and most common chemicals.

Provides low moisture absorption required for many electronic applications. Offers the convenience and economy that only a single component adhesive can offer.

#### Ordering Information:

4420-3 4 oz Dispenser tubes, 3 off

4420-4 11 oz Caulking cartridge

## Duralco® 4701

### 315°C Adhesive and Casting Compound

Duralco 4701 has excellent adhesion to metals, glass, ceramics and most plastics. Offering high electrical resistance, high bond strength, low shrinkage and excellent chemical, solvent and radiation resistance.

4701 is a single component, toughened adhesive and casting compound offering no mixing, no mess, saves both time and money, user freindly and with no volatiles, solvents or outgassing. Just apply and heat cure.

#### Ordering Information (note: US measures):

4701-1 1/2 Pint kit

4701-2 Pint kit



Properties	126	455	4420	4701
Volume Resistivity (ohm-cm)	0.002	10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>16</sup>
Thermal Conductivity (W/m°C)	7.2	1.73	1.15	1.87
Thermal Expansion (10 <sup>-5</sup> / °C)	6.4	6.4	4.5	6.4
Viscosity (cps)	100,000	100,000	Paste	40,000
Tensile Strength (psi)	10,000	10,000	7,000	11,100
Thermal Stability (1000 hrs)	0.8	0.8	0.6	-
Hardness (Shore D)	75	80	75	90
Dielectric Strength (kV/mm)	19.5	15.6	15.6	-
Moisture Absorption % (30 days)	0.5	0.4	0.5	0.4
Components / Colour / Mix Ratio	1 / Silver / n/a	1 / Grey / n/a	1 / Grey / n/a	1 / Black / n/a
Cure Cycle (Mins. @ 120°C)	30-60	30-60	30-60	60 @ 135°C

## Duralco® NM25

### 260°C Magnet Bonding Adhesive

Duralco® NM25 is an adhesive, proven for bonding magnets while withstanding the high temperatures encountered in high performance applications. It is free of magnetic particles or conductive fillers which would interfere with magnetic fields while in use.

Just mix and apply, it cures at room temperature to provide excellent chemical, solvent and moisture resistance. It will form thin bond lines for use in applications with minimal clearance.

#### Ordering Information (note: US measures):

NM25-1	Medium viscosity, Pint kit
NM25 HV-1	Non-sag putty, Pint kit
NM25 HT-1	Up to 315°C, Pint kit

“NM25 bonds a motor shaft providing a high strength bond without magnetic interference.”

“7050 bonds Nylon to Aluminium housings with bond strength required for a high performance lighting fixture.”

“7050 bonds Quartz lamp into a plastic holder.”

“S5H13 seals Bi-Polar, Electro-Cauterizers and withstands thousands of sterilisation cycles at 190°C.”

## Bond-IT® 7050

### 200°C Super Nylon Bonder

Bond-IT® 7050 incorporates adhesion promoters right into the epoxy's backbone structure permanently improving adhesion and bond strength.

Adheres to most plastic surfaces producing bonds that are in many cases stronger than the plastic substrate themselves. Bonds combinations of dissimilar materials including metals, high performance composites, ceramics, plastics, glass and cures at room temperature.

#### Ordering Information (note: US measures):

7050-1	Dispenser kit
7050-2	Pint kit

## Resbond® S5H13

### 260°C Hot Sterilisable

Resbond® S5H13 is a unique epoxy that after a simple room temperature cure can assemble, bond and insulate stainless steel, metals, glass and ceramic components for use at 260°C

Specially formulated to resist the severe conditions that are encountered during repeated hot sterilisation, as required for various medical applications. Resistant to most common chemicals and solvents.

#### Ordering Information (note: US measures):

S5H13-1	Pint kit
S5H13-2	Gallon kit



Properties	NM25	NM25 HT	7050	S5H13
Volume Resistivity (ohm-cm)	10 <sup>15</sup>	10 <sup>16</sup>	10 <sup>14</sup>	10 <sup>15</sup>
Thermal Conductivity (W/m°C)	1.87	1.87	0.65	1.87
Thermal Expansion (10 <sup>-5</sup> / °C)	3.3	3.7	4.8	3.3
Viscosity (cps)	20,000	20,000	20,000	20,000
Tensile Strength (psi)	10,000	11,100	5,000	10,000
Thermal Stability (1000 hrs)	0.5% @ 200°C	0.1% @ 200°C	0.5% @ 200°C	0.5% @ 200°C
Hardness (Shore D)	80	94	70	85
Dielectric Strength (kV/mm)	19.5	21.64	15.6	19.5
Moisture Absorption (30 days %)	0.2	0.02	0.2	0.2
Components / Colour / Mix Ratio	Two / Tan / 100:8	Two / Tan / 100:28	Two / Black / 100:10	Two / Black / 100:13
Cure Cycle (hrs. @ 25°C)	4-16	4 @ 120°C	4-16	16



## EPOX-EEZ® Twin Pack Cartridges

### Ambient Curing Adhesives

High performance, high temperature epoxies are available in easy to use EPOX-EEZ twin pack cartridges. Just place the cartridge into the applicator gun, snap on a mixer tube and squeeze to apply.

The completely measured and fully mixed adhesive will cure at room temperature to provide up to 260°C service.

No more time consuming weighing and measuring. Ideal for use in any high temperature application.

#### Ordering Information:

- ETSKxxxx** Starter pack with re-usable applicator gun. Contains: 1 cartridge each of 4525, 4461, 4537 and 4540.
- EETPxxxx** Twin pack refills package of 4 x 2 oz cartridges. Available in 4525, 4461, 4537, 4538 and 4540. Specify grade required. For specific product series properties, see table below.
- DK104** Applicator gun and plunger for 4538 and 4537
- DK106** Applicator gun and plunger for 4525, 4461 and 4540
- 190-620** Disposable mixer tube nozzles. Pack of 10.

Make application easy with  
**EPOX-EEZ**



Properties	4525	4461	4537	4540
Hardness (Shore D)	80	75	60	80
Viscosity (cps)	40,000	800	10,000	30,000
Tensile Strength (psi)	10,000	9,500	6,000	10,000
Thermal Cond. (W/m°C)	1.87	0.58	1.01	4.32
Dielectric Strength (kV/mm)	17.5	17.5	17.5	9.75
Vol. Resistivity (ohm-cm)	10 <sup>15</sup>	10 <sup>13</sup>	10 <sup>11</sup>	10 <sup>8</sup>
Shrinkage (% max.)	0.2	1	0.2	0.1
Absorption (30 days %)	0.05	0.15	0.2	0.2
Therm. Stab. (1000hrs 90°C)	0.05	0.2	0.6	0.5
Colour	Black	Amber	Blue	Grey
Cure Cycle (hrs. @ 25°C)	16	16	1-4	16

## EPOX-EEZ® Pre-Measured Kits

### Just Mix and Apply

High temperature epoxy formulations are packaged in convenient, easy to use pre-measured kits, with no more measuring, mess or waste.

EPOX-EEZ resins are supplied in specially designed rigid mixing cups and the hardeners are supplied in pre-measured disposable syringes.

Just inject one syringe of hardener into one jar of resin, mix, use and discard. Consistent results are always obtainable.

Job sized EPOX-EEZ pre-measured kits are the most economical, easy to use epoxy system available. The ideal choice for production bonding, potting and sealing.

#### Ordering Information:

- EE xxxx -10** Pre-Measured Kit @ 10 units x 10g
- EE xxxx -25** Pre-Measured Kit @ 10 units x 25g

Where 'xxxx' is the Duralco system number, such as example part number EE-4461-10.

“Technicians have found that the unique **EPOX-EEZ** kit in pre-measured packaging resulted in 100% reliable bonds with full performance even in the field.”

“**EE 4461** simplified the field assembly of optical fibre cables, preventing moisture from decaying delicate fibre optic bundles.”



Ref	System Description	Temp	Colour
EE 128*	Ceramic based thermally conductive	260°C	Grey
EE 132*	Aluminium based thermally conductive	260°C	Silver
EE 861*	Low viscosity potting compound	260°C	Amber
EE 4460**	Low viscosity encapsulant adhesive	315°C	Amber
EE 4461*	Low viscosity encapsulant adhesive	260°C	Amber
EE 4540*	Aluminium filled machinable & repair epoxy	260°C	Silver
EE 4525*	Electrically resistant adhesive	260°C	Black
EE 4538*	Flexible epoxy bonds dissimilar materials	230°C	Amber
EE 4700**	High temperature adhesive	315°C	Black
EE 4703**	Ultra high temperature adhesive	340°C	Black

Where: \* = Room temperature cure | \*\* = Cure for 4 hrs @ 120°C

## Durapot® 86x Series

### High Performance Casting, Embedding and Encapsulating Compounds

These high temperature epoxy potting compounds offer temperature stability, plus excellent chemical, solvent and electrical resistance. The ideal choice for the most demanding electronic, industrial and instrumentation applications.

#### Properties of Potting and Casting Systems

Our technologically advanced potting and encapsulation materials are designed to resist exposure to hostile environmental conditions.

They offer the following advantages:

- High voltage insulation
- Enhanced thermal management properties
- Exceptionally low coefficients of thermal expansion
- Thermal shock resistance

#### Durapot 861IP • 260°C Low Viscosity Impregnant

Provides excellent penetration even on tightly wound coils. Just mix and cure at room temperature to ensure excellent electrical, moisture and chemical resistance.

#### Durapot 862 • 315°C High Temperature, Low Viscosity

A reactive compound for use up to 315°C. Low viscosity compound provides excellent penetration and encapsulation. Requires thermal cure at 120°C.

#### Durapot 863 • 340°C Highest Temperature Potting

A cross-linked in-organic polymer system, offering excellent dielectric properties, heat stability, moisture and solvent resistance. Cure at 120°C.

#### Durapot 864 • 230°C Flexible Potting Compound

Provides the flexibility required for severe thermal shock applications. Will bond dissimilar materials, treated TEFLON® and other difficult to bond plastics.

#### Durapot 865IP • 260°C High Thermal Conductivity

For applications requiring high heat flows and rapid thermal dissipation. Just mix, apply and cure at room temperature. Used for thermally conductive casting.

#### Durapot 866 • 260°C Thermally Insulating

Convenient two part, room temperature curing system. Forms a low density, non porous foam for high temperature applications. Available in flame retardant grades.

#### Durapot 868 • 260°C High Temperature, Flexible

A high temperature, flexible epoxy ideal for thermal shock applications, stress free potting and bonding. Offers high electrical resistance.

EPOXY potting compounds  
offer temperatures up to  
**340°C**



Properties	861IP	862	863	864	865IP	866	868
Volume Resistivity (ohm-cm)	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>14</sup>
Thermal Conductivity (W/m°C)	0.57	0.57	1.30	1.00	1.73	0.22	0.57
Thermal Expansion (10 <sup>-5</sup> / °C)	5.4	5.4	3.4	n/a	3.8	4.5	5.2
Viscosity (cps)	600	600	2,000	10,000	10,000	10,000	800
Dielectric Strength (kV/mm)	17.55	19.5	21.45	17.55	27.3	19.5	19.5
Dielectric Constant	4.15	4.15	3.50	3.50	3.50	3.50	4.10
Hardness (Shore D)	80	80	90	60-80(A)	95	60	85(A)
Mix Ratio	100:17	100:80	100:71	100:120	100:21	100:12	100:40
Components / Colour	2 / Amber	2 / Amber	2 / Amber	2 / Tan	2 / Grey	2 / Tan	2 / Amber
Accelerated Cure Cycle (°C)	5 mins @ 120	60 mins @ 175	1-2 hrs @ 175	1-2 hrs @ 120	10 mins @ 120	10 mins @ 120	60 mins @ 175
Standard Cure (hrs) room temp.	16-24	4 @ 120°C	4 @ 120°C	24	4-16	24	2-4 @ 120°C



## Resbond® 105 Series

### Application Aids

A range of Adhesion Promoters, Solvents and Thinners specifically designed for use with the Cotronics' range of epoxy adhesives and compounds.

#### 105RF • Flexibiliser and Adhesion Promoter

Improves the bond strength, thermal shock resistance and impact strength of cured epoxies. 105RF may be added to any of Cotronics' epoxies or epoxy based compounds to increase the adhesion of the cured system.

Add up to 30% by weight to the pre-mixed resin and hardener.

Note: The use of high concentration of flexibiliser may reduce the maximum temperature capacity of the epoxy system.

#### Ordering Information (note: US measures):

105RF-1 Pint

#### 105RT • Resbond Thinners

Reduce the viscosity and improve the flow characteristics that are required for special applications.

These reactive, low viscosity liquids may be added directly to our epoxy based adhesives and potting compounds in amounts that vary from 3% to 20% by weight.

Note: The use of high concentration of thinner may reduce the maximum temperature capacity of the epoxy system.

#### Ordering Information (note: US measures):

105RT-1 Pint

#### 105RS • Resbond Solvent

Makes clean up for uncured epoxies, resins and hardeners quick and safe. A high purity cleaner for a wide range of stubborn contaminants benefits from moderately fast drying characteristics, allowing a 'soak time' to dissolve residue.

No harsh odours, does not contain aromatics, chlorinated solvents, or caustics to minimise risk of irritation.

Available in convenient 12 oz spray can.

#### Ordering Information (note: US measures):

105RS-1 12oz Spray Can

#### 105RP • Resbond Surface Prep

Resbond surface preparation and cleaner safely removes greases, oils etc., with a completely bio-degradeable and environmentally safe solvent.

Special additives act as adhesion promoters to prepare the surface for improved bond strength.

It is ideal for bonding applications with difficult to clean surfaces.

#### Ordering Information (note: US measures):

105RP-1 2 Pints



A selection of syringes, caulking tubes and mixers are also available. Please contact us for more details.

**Durapot®**  
**Durabond®**  
**Bond-IT®**  
**Duralco®**  
**Resbond®**  
**Epox-EEZ®**

## Resbond®

### High Temperature Adhesive Properties

The selection chart below is useful in helping the user to choose the optimum ceramic adhesive and is offered as a general guide and should be followed in the approximate order listed here.

A final manufacturing selection is then based on the results obtained. If several adhesives are indicated for a specific application, we would recommend a physical comparative evaluation be made.

Excluded from the table below is the Resbond 940 Series of adhesives that offers room temperature fast setting adhesives. For more details please see table on page 20.

#### Selection Criteria:

1. Choose maximum temperature required.
2. Match thermal expansion of materials to be bonded.
3. Select the required electrical properties.
4. Select the bond strength requirements
5. Check for porous surfaces (is primer/pre-coat required).
6. Check moisture or humidity requirements.
7. Choose from the following manufacturing requirements:
  - One component, cures by evaporation
  - Two component, chemical set
  - Viscosity and Dispensability
  - Cure time for handling strength

Features	Elec. Resistant			Therm. Conduct		Single Part		Silica	Ultra Temp.		Metallic		
Product Ref	903HP	919	920	908	906	989	907GF	905	904	931	950	952	954
Properties	Hi-Bond Strength	Elec. Resistant	Therm. Conduct	Dual Cond.	High Expansion	General Purpose	Fire Proof	Low Expansion	Zirconia	Graphite	Alumina	Nickel	Stainless
Service Temp. (°C)	1790	1540	1650	1650	1650	1650	1260	1370	2200	2980	650	1100	1100
Base	Al <sub>2</sub> O <sub>3</sub>	MgO	Al <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	MgO	Al <sub>2</sub> O <sub>3</sub>	MICA	SiO <sub>2</sub>	ZrO <sub>2</sub>	Carbon	Al	Nickel	316SS
Colour	White	Tan	White	White	White	White	Grey	White	Tan	Black	Grey	Grey	grey
Compressive Strength (psi)	7000	4500	4500	3000	3000	3000	1500	3200	6000	3000	4000	5000	4500
Flexural Strength (psi)	3500	450	450	1100	1500	1100	1250	2100	3000	1500	3000	3000	2500
Therm. Expansion (x10 <sup>-6</sup> /°C)	7.2	4.7	8.1	8.1	12.6	8.1	8.1	0.5	7.4	7.2	18.0	7.2	18.0
Therm. Conduct (W/m°C)	5.7	0.6	2.2	2.2	5.7	2.2	0.9	1.9	1.4	8.6	6.3	2.0	1.4
Dielectric Strength (kV/mm)	9.75	10.53	10.53	7.8	9.75	7.8	5.65	7.8	9.75	Cond.	Cond.	Cond.	Cond.
Volume Resistivity (ohm-cm)	10 <sup>10</sup>	10 <sup>11</sup>	10 <sup>11</sup>	10 <sup>10</sup>	10 <sup>9</sup>	10 <sup>8</sup>	10 <sup>9</sup>	10 <sup>11</sup>	10 <sup>8</sup>	Cond.	Cond.	Cond.	Cond.
Mix Ratio (by weight)	n/a	100:13	100:14	100:33	100:42	n/a	n/a	100:60	n/a	100:35	100:60	100:120	100:25
Consistency	Paint	Paste	Paste	Paste	Paste	Paint	Paste	Paste	Paint	Paste	Paste	Paste	Paste
Page Number	17	17	17	18	18	19	19	16	21	21	22	22	22

Resbond Ceramic Adhesives are based on high purity, ceramic binders and selected reinforcing fillers. They were designed to satisfy the most difficult, high temperature application requirements.

These adhesives have excellent adhesion to ceramics, metals, glass and plastics, offering excellent high temperature stability, dielectric strength, mechanical properties and thermal shock resistance.

They are resistant to molten metals, oxidising and reducing atmospheres, most chemicals and solvents.

Just mix and cure at room temperature, no objectionable odours, VOC's or outgassing.

Resbond adhesives are available in a wide range of temperature capabilities, viscosities, expansion rates, conductivities and dielectric strengths.

The ideal choice for research, electronics, metallurgical, nuclear and industrial applications.

CERAMIC compounds  
operating temperatures  
up to **3000°C**



## Resbond® 970N

### Ceramic Adhesive Selector Kit

To assist users with their product selection and evaluation, a carefully chosen group of high temperature adhesives in convenient 4 oz. bottles has been combined in to a single kit. For kit contents see below.

#### Kit contains:

- 901** 1260°C. Ceramic hardener used for bonding & coating porous materials, see page 18.
- 907GF** 1260°C. Gasket former / adhesive used for sealing, bonding and filling, see page 19.
- 919** 1540°C. Electrically resistant adhesive for encapsulating and bonding, see page 17.
- 989** 1650°C. General purpose Alumina, for coating and bonding, see page 19.
- 940** 1090°C. Fast setting ceramic, used for strong bonds, see page 20.
- 950** 650°C. Alumina, high thermal conductivity and machinability, see page 22.
- 7030** 980°C. Strong epoxy like ceramic, used for high expansion applications, this page.

For specific product specification data please refer to relevant page of this product guide.



“Resbond 905 bonds quartz to stainless steel to aid processes designed to cool hot silicone.”

“Resbond 905 successfully bonds coloured glass panels to a halogen lamp, creating a crack resistant decorative finish.”

## Thermeez® 7030

### 980°C Epoxy Like Adhesive

7030 is a high expansion adhesive that can be applied to most metals, ceramics, door gaskets and ceramic cloths. It is fireproof and resistant to most acids, alkalis, solvents, corrosives and electricity. Just apply, let dry and post cure at 315°C.

Commonly used in high temperature exhaust systems, diesel engines, gas turbines, heating plants etc.

#### Ordering Information (note: US measures):

- 7030-1** 2 Pints
- 7030-2** Gallon
- 7030-3** 5 Gallon

## Resbond® 905

### 1370°C Low Expansion Adhesive

Resbond® 905 Quartz (fused silica) adhesive was specially formulated for bonding low expansion and thermal shock resistant ceramics. The thermal expansion closely matches the extremely low expansion of quartz, fused silica, corderite and lithium-alumina ceramics.

Just apply and let dry. Resbond 905 is resistant to most chemicals and solvents.

#### Ordering Information (note: US measures):

- 905-1** Pint
- 905-2** 2 Pints
- 905T-1** Thinner - Pint



Properties	Resbond 905	Thermeez 7030
Volume Resistivity (ohm-cm)	10 <sup>11</sup>	10 <sup>9</sup>
Thermal Conductivity (W/m°C)	1.90	1.20
Thermal Expansion (10 <sup>-5</sup> /°C)	0.50	13.5
Compressive Strength (psi)	3,200	5,000
Flexural Strength (psi)	2,100	1,450
Dielectric Strength (kV/mm)	7.8	3.9
Components	2	2
Mix Ratio	100:60	100:20
Colour	White	White
Consistency	Paste	Paste

## Resbond® 919

### 1530°C Electrically Resistant

Formulated with proprietary ceramic binders to offer an adhesive with exceptionally high electrical resistance. These binders maintain their high electrical resistance and dielectric strength even when exposed to temperatures up to 1530°C.

Resbond 919 is commonly used for electrical insulation when potting, sealing or coating ignitors, thermocouples, heating coils, instrumentation etc. Just mix to a creamy paste, apply and dry at room temperature.

#### Ordering Information (note: US measures):

919-1 2 Pints

919-2 Gallon

## Resbond® 920

### 1650°C Thermally Conductive

Offers both high thermal conductivity and the superior electrical resistance of Resbond 919. It is based on conductive Alumina ceramic and should be used whenever rapid dissipation of heat is required. Resbond 920 has a dielectric strength of 10.53 kV/mm, volume resistivity of  $10^{11}$  ohm-cm (at room temperature) and a thermal conductivity of 2.2 Watts/m°C.

Offers excellent electrical, chemical and solvent resistance. Easy to use just mix, apply and cure at room temp.

#### Ordering Information (note: US measures):

920-1 2 Pints

920-2 Gallon

## Resbond® 903HP

### 1790°C Bonds Hi-Strength Ceramics

High temperature Alumina adhesive, developed for high strength bonding of any combination of dense, non porous ceramics, glass and non-reactive metals. It is a smooth, creamy paste that can be brushed, trowled or sprayed on.

Just re-mix and apply. Handling strength is obtained after an initial cure of 120°C, a complete cure occurs at 315°C to 370°C and it is usable to 1790°C continuously.

#### Ordering Information (note: US measures):

903HP-1 Pint

903HP-2 2 Pints

903HPT-3 Thinner - Pint

“Resbond 919 bonds electrode rods into electrically insulating ceramic tubes and protects them from voltage breakdown and corrosive atmospheres.”

“Resbond 919 forms protective tubes for fibreglass covered extension wires, protecting against heat and corrosion.”

“Resbond 920 replaced seven different adhesives and potting compounds, at a heating element manufacturer’s plant for use in various applications from -60°C to 1500°C.”

“903HP was easily sprayed on to stainless steel to form a dielectric layer for an industrial heater, used at 760°C.”



Properties	Resbond 919	Resbond 920	Resbond 903HP
Volume Resistivity (ohm-cm)	$10^{11}$	$10^{11}$	$10^{10}$
Thermal Conductivity (W/m°C)	0.6	2.20	5.76
Thermal Expansion ( $10^{-5}$ / °C)	4.7	8.1	7.2
Compressive Strength (psi)	4,500	4,500	7,000
Flexural Strength (psi)	450	450	3,500
Dielectric Strength (kV/mm)	10.53	10.53	9.75
Components	2	2	1
Mix Ratio	100:13	100:14	n/a
Colour	Tan	White	White
Consistency	Paste	Paste	Paint



## Resbond® 906

### 1650°C High Expansion Adhesive

Magnesia based adhesive formulated for bonding high expansion materials for use to 1650°C, it bonds to steel, stainless, aluminium, brass, copper, silver, nickel and other high expansion materials. It will cure at room temperature to form a highly thermally conductive bond.

Strength and moisture resistance will be improved by a post cure at 315°C to 370°C.

Resbond 906 has excellent resistance to oxidising and reducing atmospheres, most chemicals and solvents, as well as being resistant to flame impingement and most liquid metals.

#### Ordering Information (note: US measures):

906-1	Pint
906-2	2 Pints
906T-1	Thinner - Pint

“Resbond 906 bonded re-crystallised alumina tubes to PTFE insulated cable for use at 370°C.”

“Resbond 906 coated Hi-Watt density heating coils before insertion into stainless steel tubes. Did not crack when exposed to vibration and high temperatures.”

“Resbond 908 successfully filled a long tubular probe, providing long term electrical isolation and moisture proofing for an electronic sensor”



Properties	Resbond 906
Volume Resistivity (ohm-cm)	10 <sup>9</sup>
Thermal Conductivity (W/m°C)	5.76
Thermal Expansion (10 <sup>-6</sup> / °C)	12.6
Compressive Strength (psi)	3,000
Flexural Strength (psi)	1,500
Dielectric Strength kV/mm)	9.75
Components	2
Mix Ratio	100:42
Colour	White
Consistency	Paste

## Resbond® 908

### 1650°C Electrically Resistant Adhesive

A high purity, Alumina-based adhesive that incorporates a unique catalytic curing system. Just mix the adhesive and its activator to form a readily dispensible, smooth, creamy paste. Suitable for any application requiring micro drops or several ounces of material.

It has excellent electrical and moisture resistance, is thermally conductive and will become water insoluble after use (or post cure) at temperatures of 120°C to 150°C.

#### Ordering Information (note: US measures):

908-1	Pint
908-2	2 Pints

## Rescor® 901

### 1260°C Adhesive/Protective Coating

High purity, Alumina Oxide based ceramic composite that combines the refractory properties of Alumina with ceramic fibre reinforcement. Provides excellent resistance to oxidising and reducing atmospheres, molten non-ferous metals, steam, most chemicals and solvents.

Packaged in a ready to use, rich, creamy paint form. Just re-mix and apply. Easily applied by brushing, spraying or dipping and cures at room temperature to form a hard surface.

#### Ordering Information (note: US measures):

901-1	2 Pints
901-2	Gallon



Properties	Resbond 908	Rescor 901
Volume Resistivity (ohm-cm)	10 <sup>10</sup>	10 <sup>12</sup>
Thermal Conductivity (W/m°C)	2.16	0.29
Thermal Expansion (10 <sup>-6</sup> / °C)	8.1	7.2
Compressive Strength (psi)	3,000	1,200
Flexural Strength (psi)	1,100	600
Dielectric Strength (kV/mm)	7.8	7.8
Components	2	1
Mix Ratio	n/a	n/a
Colour	White	White
Consistency	Paste	Paint

## Resbond® 989

### 1650°C General Purpose Adhesive

A single component 1650°C Alumina based general purpose adhesive. It has a smooth creamy consistency and cures at room temperature to form strong bonds to ceramics, graphite, metals and glass. It is resistant to oxidation, electricity, molten metals, most chemicals and solvents.

It is easy to use, just apply and air dry for between 2 to 4 hours. Curing may be accelerated with the application of mild heat (90°C for 1 hour).

**Ordering Information** (note: US measures):

Resbond 989-1	Two Pints
Resbond 989-2	Gallon
Resbond 989T-1	Thinner - Pint

## Resbond® 989F

### 1650°C Pre-Nano Adhesive

The Alumina used in 989F has a reduced particle size of 600nms. This compound combines this ultra-fine Alumina with special high temperature colloidal ceramic binders to create an adhesive ideal for a new generation of applications.

Can be used in the finest dispensers and offers the ability to bond super fine electronic components, bundles of fibre optic filaments etc

**Ordering Information** (note: US measures):

Resbond 989F-1	Pint
Resbond 989F-2	2 Pints

## Resbond® 989FS

### 1650°C Fast Set Adhesive

989 Fast Set is specially formulated for applications requiring a fast setting, single component Alumina adhesive. 989FS is a free flowing formulation that is ideal for use in automatic dispensing equipment. It can be precisely dispensed through fine needles without clogging or mess.

Cures at room temperature in 1/2 to 2 hours, or in 5 minutes at 90°C, it is an ideal choice for high speed applications where automation is required.

**Ordering Information** (note: US measures):

Resbond 989FS-1	Pint
Resbond 989FS-2	2 Pints

## Resbond® 907GF

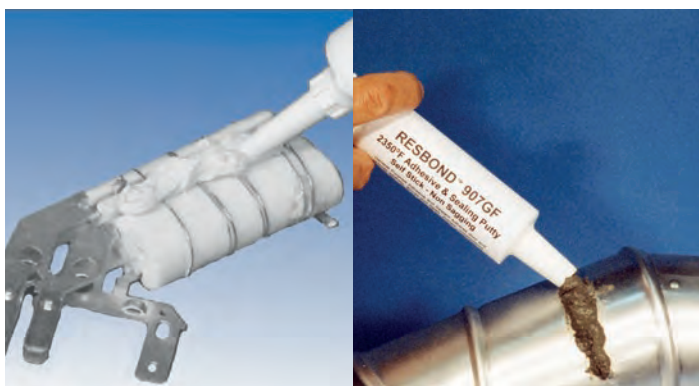
### 1280°C Fireproof Adhesive and Sealant

A moist and creamy putty that is easily applied from a standard caulking cartridge for use up to 1280°C. Just apply directly to clean steel, stainless steel, iron and most metals, ceramics, ceramic cloths, tapes, gaskets etc.

It air dries in 4 to 12 hours at room temperature, but curing may be accelerated with mild heat. It is resistant to most chemicals, solvents, oxidising and reducing atmospheres.

**Ordering Information** (note: US measures):

Resbond 907GF-1	1/2 Pint
Resbond 907GF-2	2 Pints
Resbond 907GF-5	3 x 4oz dispenser tubes
Resbond 907GF-6	11oz caulking cartridge



“Resbond 989 bonds 0.03” diameter nickel pins to 0.04” holes in a aluminium nitride ceramic. These parts were then quenched (from 900°C) in liquid Nitrogen without failure.”

“Resbond 907GF bonds over-lapping layers of stainless steel to form air ducts for furnaces that operate at 650°C continuously.”

Properties	Resbond 989	Resbond 989FS	Resbond 989F	Resbond 907GF
Volume Resistivity (ohm-cm)	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>9</sup>
Thermal Conductivity (W/m°C)	2.16	2.16	1.73	0.86
Thermal Expansion (10 <sup>-6</sup> / °C)	8.1	8.1	8.1	-
Compressive Strength (psi)	3,000	3,500	2,800	1,500
Flexural Strength (psi)	1,100	1,250	950	-
Dielectric Strength (kV/mm)	7.8	7.8	7.8	5.65
Components	1	1	1	1
Mix Ratio	n/a	n/a	n/a	n/a
Colour	White	White	White	Grey
Consistency	Paint	Paint	Cream	Creamy Putty



## Resbond® 940 Series

### 1650°C High Performance Fast Setting, Customisable Adhesives.

The 940 range of fast setting, customisable adhesives are designed to eliminate costly errors caused by bonding adhesives and substrates with mismatched physical properties.

Choose from low to high thermal expansion, ultra high temperature, machinable, metallic, super fast setting and electrically or thermally conductive grades. Other variants are readily available upon request.

Resbond 940 customisable adhesives have excellent adhesion to quartz, corundum, fused silica, glassware, ceramics, metals etc. and are usually cured in 16 hours at room temperature or in 5 minutes at 90°C.

They have outstanding chemical and thermal shock resistance. Applications include bonding, sealing and insulating light bulbs, fixtures, halogen lamps, fibre optic cables, sensors, encapsulating industrial heating elements, forming electrically resistant coatings for high temperature instruments, joining heating elements to electrical terminals etc.

“Resbond 940 encapsulates industrial heating elements and high temperature sensors. Resbond outperformed all the other ceramic adhesives and materials tested. Also used as an electrically resistant coating.”

“Resbond 940HE provided an insulating end seal for a heating element.”

#### Resbond 940 • 1100°C Standard

Has excellent adhesion to ceramics, glass, metals etc. Offers excellent electrical, chemical and thermal shock resistance.

#### Resbond 940HT • 1530°C High Temperature

High temperature Alumina adhesive resistant to liquid metals, most chemicals, solvents, oxidising and reducing atmospheres.

#### Resbond 940LE • 1370°C Low Expansion

Quartz adhesive for production applications. Offers excellent adhesion to quartz, fused silica, corundum, ceramics etc.

#### Resbond 940HE • 980°C High Expansion

A Silica filled adhesive for bonding and encapsulating high expansion materials.

#### Resbond 940SS • 1100°C Stainless Steel

A 316 Stainless Steel based adhesive with excellent heat resistance. Machinable and resistant to chemicals & solvents.

#### Ordering Information (note: US measures):

940-1	2 Pints
940-2	Gallon
940HT-1	Pint
940HT-2	2 Pints
940LE-1	Pint
940LE-2	2 Pints
940HE-1	Pint
940HE-2	2 Pints
940SS-1	Pint
940SS-2	2 Pints
940-3	Thinner - Pint



Properties	Resbond 940	Resbond 940HT	Resbond 940LE	Resbond 940HE	Resbond 940SS
Volume Resistivity (ohm-cm)	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>8</sup>	10 <sup>9</sup>	Conductive
Thermal Conductivity (W/m°C)	1.15	2.16	0.72	1.20	1.44
Thermal Expansion (10 <sup>-6</sup> / °C)	8.1	7.2	0.72	13.5	18.0
Compressive Strength (psi)	4,000	4,200	3,500	4,200	4,500
Flexural Strength (psi)	1,800	1,900	2,100	1,450	2,500
Dielectric Strength (kV/mm)	4.87	4.87	4.87	3.9	Conductive
Components	2	2	2	2	2
Colour	Tan	White	White	Tan	Grey
Consistency	Paste	Paste	Paste	Paste	Paste

## Resbond® 904

### 2200°C Zirconia Adhesive & Coating

Extreme temperature adhesive. Resbond 904 is a smooth, creamy paste that is easily applied and air dried to form a hard surface.

Resistant to molten metals, most chemicals, solvents, oxidation and reducing atmospheres. Ideal for bonding and forming electrical, oxidation erosion and liquid metal resistant coatings for ceramics, graphite and thermocouple tubes.

#### Ordering Information (note: US measures):

904-1	Pint
904-2	2 Pints
904-4	Thinner - Pint

“Resbond 904 bonded exhaust lines to a Thermogravimetric Analyser’s reaction chamber and was used at 1870°C under a vacuum.”

“Resbond 904 coated aluminium panels on a spacecraft and successfully protected the metal panels from high intensity X-Ray radiation.”

“Resbond 931 repaired a 500mm diameter by 600mm high, cracked, induction heating susceptor. The susceptor heated uniformly after the repair. Resbond 931 graphite adhesive doubled the life of this expensive part.”

“Resbond 931S sealed the porous surface of graphite parts, doubling the life of heating trays. 931S stopped dusting of graphite fixtures.”

## Resbond® 931

### 3000°C Graphite Adhesive

Bonds graphite or carbon components for use to 3000°C with 99% pure graphite. Just apply and cure at 120°C. Resbond 931 has excellent adhesion to graphite and other porous surfaces, forming graphite bonds with strengths measuring in excess of 2500 psi.

It is electrically conductive and resistant to reducing atmospheres, most chemicals and solvents.

Ideal for repairing broken or cracked graphite trays, components, fixtures or dies, filling and rebuilding crevices, cracks, worn areas and bonding graphite cloths, boards etc.

## Resbond® 931C

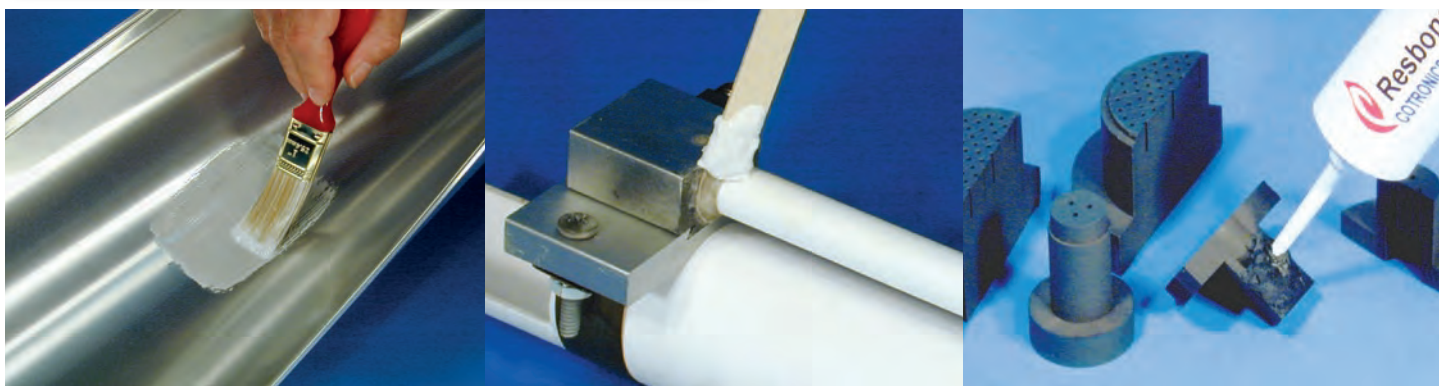
### 1370°C Single Comp. Graphite Adhesive

Easy to use, just re-mix, apply and let dry. It cures at room temperature without heat and has similar properties to the standard Resbond 931.

Sealer also available to reduce the porosity and increase wear resistance, reference 931S.

#### Ordering Information (note: US measures):

931-1	Pint
931-2	2 Pints
931-3	Gallon
931-4	Thinner - Pint
931S-1	Sealer - Pint
931C-1	Pint
931C-2	2 Pints
931C-3	Thinner - Pint



Properties	Resbond 904	Resbond 931	Resbond 931C
Purity (%)	95	99	90
Thermal Conductivity (W/m°C)	1.44	8.64	5.76
Thermal Expansion (10 <sup>-6</sup> / °C)	7.38	7.38	7.38
Compressive Strength (psi)	6,000	3,000	4,200
Flexural Strength (psi)	3,000	1,500	1,800
Dielectric Strength (kV/mm)	9.75	Conductive	Conductive
Components	1	2	1
Mix Ratio	n/a	100:35	n/a
Colour	Tan	Black	Black
Consistency	Paint	Paste	Paste



## Durabond® 950 Series

### 1100°C Metallic Adhesives.

Durabond 950 series adhesives and putties were specially formulated to bond metals, ceramics and dissimilar materials. These metallic composite adhesives overcome the brittle bonds obtained with ceramics and offer some of the ductility and impact resistance associated with soldering and welding.

Durabond adhesives can be drilled, tapped, machined, etc.

They do not contain epoxies or silicones which would limit their use to 340°C. These composites are inorganically bonded and chemically cured. Just mix, apply and cure at room temperature, with no odours or VOC's.

Fast setting Durabond composites (type FS) are also available. These smooth, creamy putties are ideal for repairs, patching, casting and potting.

### Durabond 950 • 650°C Aluminium

Developed for high strength and high temperature bonding and is easy to apply. It cures at ambient temperature and can be used with steel, cast iron, aluminium and copper. It's easily machinable and can be ground, sanded or polished.

### Durabond 952 • 1100°C Nickel

Specially formulated as a low expansion, metallic adhesive for bonding 400 series Stainless Steel, low expansion high temperature alloys, metals and ceramics etc.

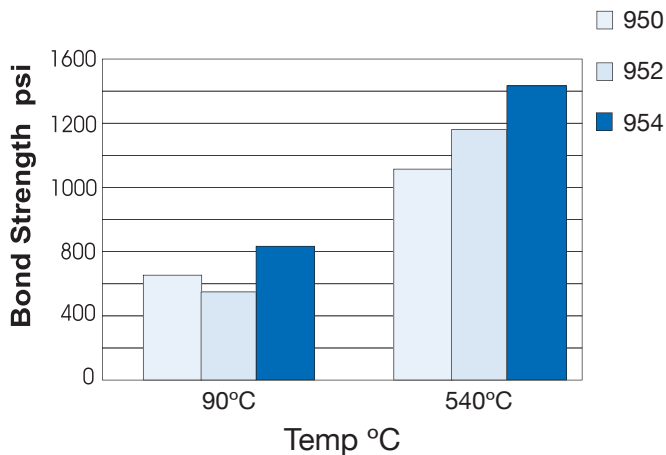
### Durabond 954 • 1100°C Stainless Steel

A high expansion adhesive for high temperature bonding of 300 series Stainless Steels, high expansion metals and ceramics.

### Durabond 954OD • 1100°C Stainless Steel Sealing

Bonds and seals high expansion materials. Ideal for applications requiring the minimum porosity from a ceramic adhesive. Commonly used to prevent leaks from equipment.

**Bond Strength vs. Temp**



### Ordering Information (note: US measures):

950-1	Pint
950-2	2 Pints
950FS-1	Putty - Pint
952-1	Pint
952-2	2 Pints
952FS-1	Putty - Pint
954-1	Pint
954-2	2 Pints
954FS-1	Putty - Pint
954OD-1	Pint
954OD-2	2 Pints



## UNIQUE METALLIC ADHESIVES AND PUTTIES

High  
Bond Strength  
Thermal Shock and Impact  
Resistance.

**1400psi**

Properties	Resbond 950	Resbond 952	Resbond 954
Bond Strength @ 650°C (psi)	1000	1200	1400
Bond Strength @ 95°C (psi)	500	400	600
Density ( kg/m³ )	1922	2884	2884
Thermal Expansion (10 <sup>-6</sup> / °C)	18	7.2	18
Pot Life (hours)	2	2	2
Cure Time (hours @ room temp.)	24	24	24
Components	2	2	2
Mix Ratio	100:60	100:120	100:25
Colour	Grey	Grey	Grey
Base	Aluminium	Nickel	Stainless

## Durabond® Putties

These smooth, creamy putties combine the high temperature performance of Cotronics' speciality formulations with easy to use dispensing systems ideal for most applications.

Non sag putties are ideal for use where the flow of an adhesive or repair material would limit their use. No need for clamps.

Just trowel on and cure at room temperature to repair, rebuild and assemble components.

These self measuring and dispensing systems are ideal for small jobs, field use, in-house repairs and even production applications.

## Durabond® 7025

### 530°C Aluminium Putty

A corrosion resistant putty with active Aluminium that provides excellent resistance to most chemicals and solvents.

Can form a smooth surface that is ideal for any high temperature repair, rebuilding, production, manufacturing, industrial, automotive or equipment application.

Cures in 24 hours at room temperature or in 2 hours at 120°C to form a highly machinable, Aluminium based composite.

#### Ordering Information:

7025-1 1 lb kit

7025-2 2 lb kit

## Thermeez® 7020

### 1760°C Ceramic Putty

Provides the refractory properties of "Space Age Aluminium Oxide Ceramics" with the economy and convenience of a ready to use caulking compound. Formulated with unique ceramic binders and Aluminium Oxide based ceramics, just apply and let dry to form a thermally and electrically insulating ceramic.

Use for instant repairs to brick, mortar, burner blocks, insulation, furnace holders and thermocouples

#### Ordering Information (note: US measures):

7020-3 11 oz caulking cartridge

7020-5 3 x 4 oz. tubes

7020-6 1 Gallon bucket

## Durabond® 7032

### 1100°C Stainless Steel Putty

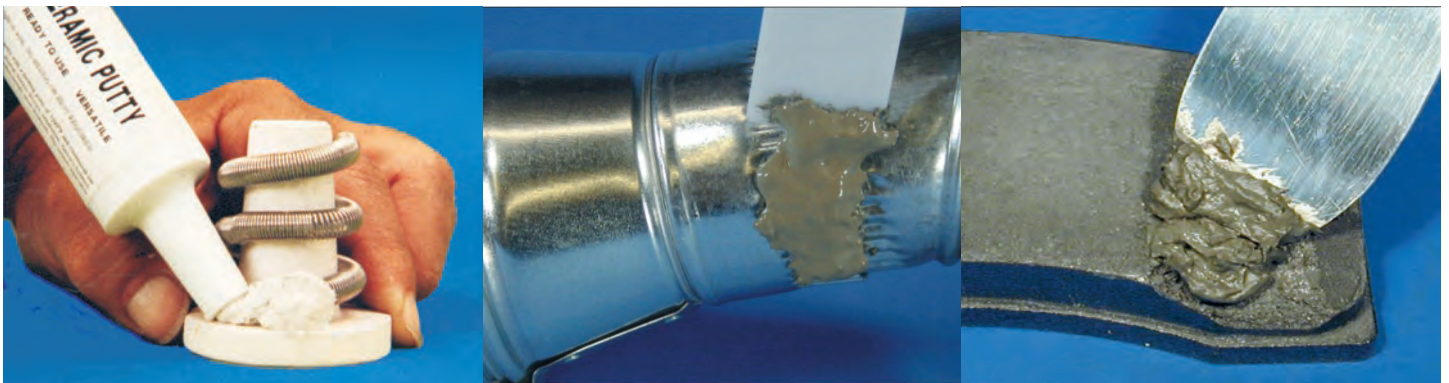
Repairs and seals high temperature equipment with the ease of Cotronics' high performance systems. Hardening starts in just 60 minutes.

Durabond 7032 is machinable and resistant to most chemicals and solvents, ideal for high temperature repairs, rebuilding, filling holes, plugging leaks in a variety of maintenance and industrial applications.

#### Ordering Information:

7032-1 1 lb kit

7032-2 2 lb kit



Properties	Thermeez 7020
Density (kg/m³)	640
Compressive Strength (psi)	1500
Elongation (%)	5
Specific Heat (BTU / # °F)	0.25
Dielectric Constant @ 10 <sup>6</sup> cps	1.61
Volume Resistivity (ohm - cm)	10 <sup>9</sup>
Dielectric Strength (kV/mm)	3.9
Thermal Conductivity (W/m°C)	0.10
Shrinkage (%)	2
Modulus of Rupture (psi)	800

Properties	Durabond 7025	Durabond 7032
Base	Aluminium	Stainless Steel
Thermal Conductivity (W/m°C)	4.32	1.44
Thermal Expansion (10 <sup>-6</sup> / °C)	18	18
Compressive Strength (psi)	4800	5400
Bond Strength (psi)	1400 @ 530°C	1200 @ 530°C
Density (g/cc)	2.2	3.5
Components	2	1
Mix Ratio	100:55	n/a
Cure Time (hrs @ room temp.)	16	16
Consistency	Putty	Putty

## Durapot® 800 Ceramic Series

### High Performance Encapsulating and Embedding Materials

These high temperature potting compounds offer temperature stability plus excellent chemical, solvent and electrical resistance. Durapot 800 series is available packaged in either Quart (US), or Gallon (US) packs, with the exception of 821 which is packaged as either Pint or Quart.

Cure times can be accelerated by mild heat (65°C - 95°C), whilst post cures @ 120°C will improve moisture resistance for 801, 808, 809, 814 and 821.

#### Durapot 801 • 1800°C Pure Alumina Ceramic

Durapot 801 is a specially formulated, room temperature curing, 99% pure alumina ceramic that offers the ultimate properties of pure Alumina. No binders to contaminate even the most delicate systems. Offers high electrical resistance even at high temperatures. This unique 99% pure alumina ceramic finds uses in many electrical and metallurgical applications.

#### Durapot 804 & 805 • 1650°C 96% Pure Alumina Ceramic

Durapot 804 and 805 were formulated to provide a high strength, low cost alumina potting and casting material. Electrical and metallurgical properties are excellent. Simply mix, pour and cure at room temperature.

#### Durapot 809 • 1530°C Electrically Resistant Cement

A general purpose ceramic potting compound. Highly electrically resistant ceramic that can be used for potting, sealing and bonding. Just mix, apply and cure at room temperature. Used in ignitions, heating coils, electronics etc.

#### Durapot 810 • 1650°C Therm. Conductive & Elec. Resistant

Highly thermal conductive, electrically resistant Alumina based potting compound and adhesive that was developed to provide excellent electrical resistance at high temperatures and improved thermal conductivity for high power applications.

#### Durapot 814 • 1100°C High Speed Potting Cement

814 was formulated for use where a fast cure is required. Just mix and apply. Will cure in 5 minutes at 80°C - 110°C or overnight at room temperature.

#### Durapot 820 • 1420°C Electrically Resistant Coating

A single component paint and coating, just brush on and air dry to form a highly resistant 1420°C coating containing over 85% Alumina. Used to coat wires, coils etc.

#### Durapot 821 • 1370°C Low Expansion Cement

Quartz based, fast curing adhesive and potting compound. The perfect material for bonding and potting quartz lamps, glassware, fibre cables or any low expansion material.



## UNIQUE HIGH PERFORMANCE POTTING COMPOUNDS

upto **13.65 kV/mm**  
dielectric strength

Properties	801	804	805	809	810	814	820	821
Base	99% Alumina	96% Alumina	96% Alumina	MgO Base	Alumina	Zirconia	Alumina Oxide	Fused Silica
Volume Resistivity (ohm-cm)	10 <sup>15</sup>	10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>11</sup>	10 <sup>11</sup>	10 <sup>8</sup>	10 <sup>12</sup>	10 <sup>8</sup>
Dielectric Strength (kV/mm)	13.65	6.82	6.82	10.53	10.53	4.88	7.80	4.88
Thermal Expansion (10 <sup>-6</sup> /°C)	7.74	7.20	7.20	4.68	8.10	8.10	7.20	0.54
Thermal Conductivity (w/m °C)	1.15	1.15	1.44	0.57	2.16	1.15	0.29	0.72
Chemical Resistance	Good	Good	Good	Good	Good	Good	Good	Excellent
Solvent Resistance	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Components / Colour	2 / White	2 / White	2 / White	2 / Tan	2 / Tan	2 / White	1 / Red	2 / White
Mix Ratio	100:44	100:19	100:12	100:13	100:13	100:30	n/a	100:44
Cure Cycle Time	24 hrs	24 hrs	24 hrs	24 hrs	24 hrs	12 hrs	24 hrs	24 hrs



## Rescor® 370

### 1650°C Ceramic Blanket

Rescor ceramic fibre blanket insulation is a strong, lightweight, flexible blanket made from asbestos-free, extra long ceramic fibres, which are cross linked to produce excellent handling strength.

Provides outstanding thermal insulation, low heat storage, high resiliency, high mechanical and thermal shock resistance and sound absorption.

#### Ordering Information:

General purpose rated @ 1260°C

370-1	1/8" thick, roll size 24" x 25'
370-2	1/4" thick, roll size 24" x 25'
370-3	1/2" thick, roll size 24" x 12'
370-4	1/2" thick, roll size 24" x 25'
370-5	1" thick, roll size 24" x 12'

High Temperature, rated @ 1370°C

370H-6	1/2" thick, roll size 24" x 12'
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Ultra High Temperature, rated @ 1650°C

370UHT-1	1-1/2" thick, roll size 24" x 24'
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Specialist foil backed, rated @ 1260°C

370FT	1/2" thick, roll size 24" x 12'
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Special sizes, custom fabricated parts and quantity prices on request.



Properties	Rescor 370
Melting Point (°C)	1760
Service Temp. (°C)	1260 to 1650
Density (kg/m³)	96 to 192
Dielectric Constant (@ 10³cps)	1.61
Dielectric Strength (kV/mm)	3.9
Loss Factor	0.017
Thermal Conductivity (W/m °C) @ 260°C	0.055
Thermal Conductivity (W/m °C) @ 537°C	0.086
Thermal Conductivity (W/m °C) @ 815°C	0.130
Thermal Conductivity (W/m °C) @ 1100°C	0.192

## Rescor® 372

### 1650°C Wrap-It Mouldable Sheets

Wrap-It mouldable sheets combine high purity fibres with proprietary, inorganic binders in a new and economical wet felt form.

Wrap-It is cut to shape, moulded and dried to form a lightweight, resilient, highly efficient, thermal insulation that is also resistant to most chemicals and solvents.

Just air dry to form strong free standing shapes.

Wrap-It will not crack or flake, has excellent thermal shock resistance and is not wet by molten metals.

Applications include insulation, furnace linings, expansion joint packing, fire protection, sound absorption.

Wrap-It can be bonded with 7020 Thermeez ceramic putty, or 901 Resbond fibre based ceramic adhesive.

#### Ordering Information:

General purpose rated @ 1260°C

372-0	1/8" thick, roll size 2' x 12.5'
372-1	1/4" thick, roll size 2' x 12.5'
372-2	1/2" thick, roll size 2' x 12.5'
372-3	1" thick, roll size 2' x 8'

High Temperature, rated at 1480°C

372HT-3	1/2" thick, roll size 2' x 6'
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Ultra High Temperature, rated @ 1650°C

372UHT-2	1/2" thick, roll size 2' x 2'
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Properties	372	372HT	372UHT
Melting Point (°C)	1760°C	1815°C	1980°C
Service Temp. (°C)	1260°C	1480°C	1650°C
Density (kg/m³)	288	288	192
Al₂O₃ %	35	65	98
SiO₂ %	65	35	2
Shrinkage (%) after 24 hrs @ 700°C	0.2	0.1	0.1
Shrinkage (%) after 24 hrs @ 1200°C	2.0	0.7	0.5
Thermal Conductivity (W/m °C) @ 537°C	0.10	0.08	0.07
Thermal Conductivity (W/m °C) @ 815°C	0.13	0.11	0.07

## Rescor® 375FT

### 1260°C Thermal Stop Tape

375FT Thermal Stop is a high purity, aluminium oxide based ceramic fibre, uniquely bonded to a 0.05mm thick layer of aluminium foil.

The ceramic fibres have a melting point of 1760°C and will provide up to 1260°C continuous service.

These resilient ceramic fibre strips are used for pipe duct wrap, expansion joints and repairs, insulation equipment, plastic moulds, pilot plant, lab units etc. Use band clamps or Type 600 high temperature tape to secure pipe wraps.

Use Resbond 901A for rigidising where required.

#### Ordering Information:

375FT-2	1/2" thick, roll size 2" x 12'
375FT-3	1/2" thick, roll size 3" x 12'
375FT-4	1/2" thick, roll size 6" x 12'
375FT-1	1/2" thick, roll size 24" x 12'
375FT-5	1" thick, roll size 2" x 8'
375FT-6	1" thick, roll size 3" x 8'
375FT-8	1" thick, roll size 6" x 8'
375FT-7	1" thick, roll size 24" x 12'

The table below gives an indication of insulating properties of Thermal Stop Tape installation.



Insulation Guide - 375 FT Thermal Stop Tape		
Hot Surface Temperature	Insulated Surface Temperature	
	375FT 1/2" thick tape	375FT 1" thick tape
537°C	150°C	105°C
760°C	200°C	150°C
870°C	235°C	195°C
980°C	275°C	215°C
1200°C	375°C	260°C

## Rescor® 360

### 1480°C Ceramic Board

Rescor ceramic board is made from asbestos-free, high purity, refractory fibres, that have a melting point of between 1760°C to 1980°C. They are thoroughly interlaced in the production process and bonded with an inorganic binder.

Strong, rigid, free standing shapes and parts are easily constructed. Just cut, saw or drill. Parts can be bonded together (if needed) with Resbond 901 adhesive, 7020 putty or 907GF sealant.

Use Resbond 901A for surface hardener where required.

Use Rescor 360 for general purpose applications, 360HS for construction, 360EHS for gaskets and high strength applications, 360H for high temperature and 3360UHT for ultra high temperature applications up to 1700°C.

#### Ordering Information:

General purpose rated @ 1260°C

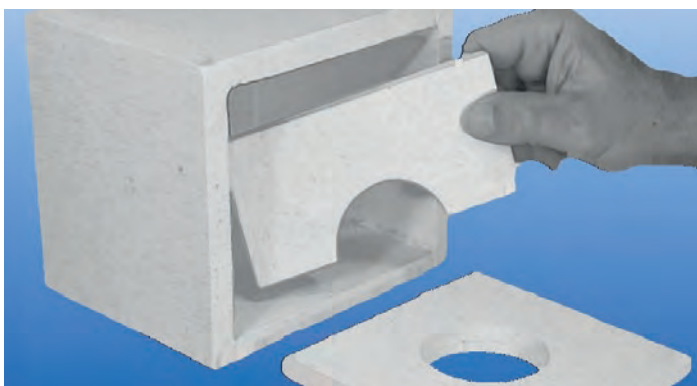
360-1	1/4" thick, size 12" x 18", 4 off
360-2	1/2" thick, size 18" x 24", 2 off
360-5	1" thick, size 18" x 24", 2 off

High strength construction

360-1EHS	1/8" thick, size 12" x 24", 2 off
360-2HS	1/2" thick, size 18" x 24", 2 off
360-5HS	1" thick, size 18" x 24", 2 off

Ultra High Temperature, rated from 1480°C

360H-5	1/2" thick, size 18" x 24", 2 off
3360UHT	1/2" thick, size 18" x 24", 2 off



Properties	360	360HS	360H
Melting Point (°C)	1760°C	1760°C	1815°C
Service Temp. (°C)	1260°C	1260°C	1480°C
Density (kg/m³)	256	528	240
Modulus of Rupture (psi)	55	350	60
Dielectric Constant (@ 10³ cps)	1.61	1.61	1.61
Dielectric Strength (kV/mm)	3.9	3.9	3.9
Thermal Conductivity (W/m °C) @ 260°C	0.065	0.079	0.065
Thermal Conductivity (W/m °C) @ 537°C	0.101	0.115	0.101
Thermal Conductivity (W/m °C) @ 815°C	0.137	0.151	0.137
Thermal Conductivity (W/m °C) @ 1090°C	0.223	0.252	0.223

## Thermeez® 399

### 1100°C Fabrics and Tapes

Rescor 399 Silica products are woven from 96% pure Silica fibre are inorganic and will not smoke when exposed to heat. Ideal for thermal and electrical insulation, handling molten metals, hose or wire covers, gaskets, expansion joints etc.

#### Ordering Information:

399T-41	Tape	1" x 0.060" 25'
399T-42	Tape	2" x 0.060" 25'
399T-81	Tape	1" x 0.125" 25'
399T-82	Tape	2" x 0.125" 25'
399C-1	Woven Fabric	0.030" x 36" x 10'
399C-2	Woven Fabric	0.054" x 36" x 10'
399T-41PS	Adhesive Tape	1" x 0.060" x 25'
399T-42PS	Adhesive Tape	2" x 0.060" x 25'
399T-81PS	Adhesive Tape	1" x 0.125" x 25'
399T-82PS	Adhesive Tape	2" x 0.125" x 25'
399S-1	Sleeving	1/64" ID x 0.008" x 25'
399S-2	Sleeving	1/32" ID x 0.010" x 25'
399S-7	Sleeving	1/8" ID x 0.035" x 25'
399S-4	Sleeving	1/4" ID x 0.020" x 25'
399S-5	Sleeving	1/2" ID x 0.035" x 25'
399S-6	Sleeving	1" ID x 0.035" x 25'
399R-1	Braided Rope	1/8" x 25'
399R-2	Braided Rope	1/4" x 25'
399R-3	Braided Rope	1/2" x 15'
399R-4	Braided Rope	3/4" x 10'
399R-5	Braided Rope	1" x 10'



Properties	Thermeez 399
Melting Point (°C)	1700
Service Temp. (°C)	1100
Silica %	98
Dielectric Constant (10 <sup>8</sup> cps)	3.8
Dielectric Strength (kV/mm)	19.5
Thermal Conductivity (W/m °C)	0.065
Tensile Strength (psi x 10 <sup>5</sup> )	5
Modulus of Elasticity (psi x 10 <sup>6</sup> )	10.5
Porosity %	1

## Thermeez® 398

### 340°C Nomex®, Kevlar®, Aramid Fabrics

Thermeez 398 fabrics, tapes or sleeving are woven from Nomex or Kevlar brand of Aramid fibres. They are exceptionally strong, temperature resistant, flame retardant and will remain flexible while in use from -40°C to 340°C.

Provides short term service to 450°C.

Thermeez 398 Aramid fabrics are resistant to fungi, bacteria, mildew and abrasion. 398 is non-allergenic and lightweight.

Use for pipe wrap, heat seal covers, pressure fabrics, gaskets and packing.

Can be impregnated with epoxies or silicones for electrical applications, personal protection, flexible equipment curtains and hose coverings etc.

#### Ordering Information:

398C-1	Fabric	5/64" x 40" 24'
398T-2	Sleeving	3/8" ID x 100'
398T-3	Sleeving	1/2" ID x 100'
398-41	Tape	1" x 1/16" x 50'
398-42	Tape	2" x 1/16" x 50'
398-43	Tape	3" x 1/16" x 50'
398-81	Tape	1" x 1/8" x 50'
398-82	Tape	2" x 1/8" x 50'
398-83	Tape	3" x 1/8" x 50'

Additional sizes and pressure sensitive tapes are available on request.



Properties	Thermeez 398
Melting Point (°C)	427
Service Temp. (°C)	340
Aramid %	100
Dielectric Constant (10 <sup>8</sup> cps)	4.0
Dielectric Strength (kV/mm)	5.85
Thermal Conductivity (W/m °C)	0.050
Tensile Strength (psi x 10 <sup>5</sup> )	80
Modulus of Elasticity (psi x 10 <sup>6</sup> )	12.0
Porosity %	0



## Thermeez® 390

### 1260°C Ultra-Temp Ceramic Tape

Ultra-Temp Ceramic Tape is made from asbestos-free aluminium oxide based, high purity refractory fibres.

Can be used to temperatures exceeding 1260°C and offers outstanding high temperature stability.

Designed to replace asbestos based products which were limited in use at 650°C.

Ultra-Temp tapes can be cut with ordinary scissors and formed into complex shapes.

The tapes have low specific heat, low thermal conductivity, resistance to thermal shock, electrical insulation, good dielectric strength and excellent corrosion resistance.

#### Ordering Information:

390-21	1" x 50', 1/32" thick
390-22	2" x 50', 1/32" thick
390-23	3" x 50', 1/32" thick
390-41	1" x 50', 1/16" thick
390-42	2" x 50', 1/16" thick
390-43	3" x 50', 1/16" thick
390-81	1" x 25', 1/8" thick
390-82	2" x 25', 1/8" thick
390-83	3" x 25', 1/8" thick



Properties	Thermeez 390
Melting Point (°C)	1760
Service Temp. (°C)	1260
Density (kg/m³)	192
Loss Factor	0.017
Dielectric Constant (@ 10 <sup>8</sup> cps)	1.61
Dielectric Strength (kV/mm)	3.9
Thermal Conductivity (W/m °C) @ 260°C	0.055
Thermal Conductivity (W/m °C) @ 537°C	0.086
Thermal Conductivity (W/m °C) @ 815°C	0.130
Thermal Conductivity (W/m °C) @ 1100°C	0.192

## Thermeez® 391

### 1430°C Ultra-Temp Tape and Cloth

Ultra-Temp 391 is woven from continuous filament, high alumina, ceramic fibres. These uniquely woven ceramic fibre cloths, tapes and sleeving, form materials with flexibility and strength. Excellent chemical and electrical resistance.

#### Ordering Information:

391W-1A	Tape	1" x 0.020" x 10'
391W-1	Tape	1" x 0.020" x 20'
391W-2A	Tape	2" x 0.020" x 10'
391W-2	Tape	2" x 0.020" x 20'
391W-1APS	Adhesive Tape	1" x 0.020" x 10'
391W-1PS	Adhesive Tape	1" x 0.020" x 20'
391W-2APS	Adhesive Tape	2" x 0.020" x 10'
391W-2PS	Adhesive Tape	2" x 0.020" x 20'
391C-1	Cloth	12" x 0.060" x 5'
391C-2	Cloth	12" x 0.060" x 10'
391C-3	Cloth	30" x 0.030" x 25'
391T-10	Thread	0.020" Dia. x 250'
391T-11	Thread	0.020" Dia. x 500'
391T-12	Lacing Rope	0.060" Dia. x 50'
391T-0	Sleeving	1/16" ID. x 1/32" x 25'
391T-1	Sleeving	1/8" ID. x 1/32" x 25'
391T-2	Sleeving	1/4" ID. x 1/32" x 15'
391T-3	Sleeving	1/2" ID. x 1/32" x 10'
391T-5	Sleeving	1" ID. x 1/32" x 10'
391T-6	Sleeving	1.5" ID. x 1/32" x 5'
391T-7	Sleeving	2" ID. x 1/32" x 5'



Properties	Thermeez 391
Melting Point (°C)	1815
Service Temp. (°C)	1430
Dielectric Constant (@ 10 <sup>8</sup> cps)	1.61
Dielectric Strength kV/mm	19.5
Thermal Conductivity (W/m °C) @ 260°C	0.065
Thermal Conductivity (W/m °C) @ 537°C	0.130
Thermal Conductivity (W/m °C) @ 1100°C	0.230
Tensile Strength (psi), base fibre	250,000
Modulus of Elasticity (psi), base fibre	22 x 10 <sup>6</sup>

## Thermeez® 395 and 397 to 815°C Tape, Cloth and Sleeve

Thermeez woven ceramic fibre products are ideal for thermal insulators, padding, gaskets, flexible curtains, liquid metal splash protection, expansion joints, sleeving for flexible wire insulation, hoses, thermocouples and induction coils

Thermeez 395 and 397 fabrics are high strength, flexible, durable, dimensionally and chemically stable and offer excellent electrical resistance.

Thermeez products are user friendly and unlike fibreglass, non-irritating to the skin. They are also non-toxic, meet OSHA requirements, will not burn and are resistant to molten metal sparks and splashes, most chemicals and solvents.

### Ordering Information:

395/7-21	Tape	1" x 1/32" x 100'
395/7-22	Tape	2" x 1/32" x 100'
395/7-23	Tape	3" x 1/32" x 100'
395/7-41	Tape	1" x 1/16" x 100'
395/7-42	Tape	2" x 1/16" x 100'
395/7-43	Tape	3" x 1/16" x 100'
395/7-81	Tape	1" x 1/8" x 100'
395/7-82	Tape	2" x 1/8" x 100'
395/7-83	Tape	3" x 1/8" x 100'
395/7-21PS	Adhesive Tape	1" x 1/32" x 50'
395/7-22PS	Adhesive Tape	2" x 1/32" x 50'
395/7-23PS	Adhesive Tape	3" x 1/32" x 50'
395/7-41PS	Adhesive Tape	1" x 1/16" x 50'
395/7-42PS	Adhesive Tape	2" x 1/16" x 50'
395/7-43PS	Adhesive Tape	3" x 1/16" x 50'
395/7-81PS	Adhesive Tape	1" x 1/8" x 50'
395/7-82PS	Adhesive Tape	2" x 1/8" x 50'
395/7-83PS	Adhesive Tape	3" x 1/8" x 50'

395C/7C-1	Woven Cloth	40" x 1/16" x 5'
395C/7C-2	Woven Cloth	40" x 1/16" x 15'
395C/7C-3	Woven Cloth	40" x 1/16" x 50'
395C/7C-5	Woven Cloth	40" x 1/8" x 25'
395T/7T-0	Sleeving	1/8" ID. x 100'
395T/7T-1	Sleeving	1/4" ID. x 100'
395T/7T-2	Sleeving	3/8" ID. x 100'
395T/7T-3	Sleeving	1/2" ID. x 100'
395T/7T-4	Sleeving	3/4" ID. x 100'
395T/7T-5	Sleeving	1" ID. x 100'
395T/7T-6	Sleeving	1.5" ID. x 50'
395T/7T-7	Sleeving	2" ID. x 50'
395R-1	Braided Rope	3/8" DIA. x 100'
395R-2	Braided Rope	1/2" DIA. x 100'
395R-3	Braided Rope	1" DIA. x 50'

When ordering, specify Thermeez 395 for 595°C service or Thermeez 397 for 815°C service



Properties	395	397
Melting Point (°C)	1540	1540
Service Temp. (°C)	595	815
Density (kg/m³)	480	560
Dielectric Strength kV/mm)	17.55	17.55
Thermal Conductivity (W/m °C) @ 260°C	0.069	0.072
Thermal Conductivity (W/m °C) @ 537°C	0.130	0.137

### Uses:

Woven Tapes: Pipes, hoses, cables, exhaust systems, equipment wrapping, door gaskets, strip curtains etc.

Adhesive Tapes: Wrapping around complex objects for fast economical insulation of pipes, cables etc.

Woven Cloths: Furnaces, fire and splash curtains, fabrication of insulation blankets, pillows, clothing etc.

Sleeving: Hi-temp tubing, hose and wire insulation protection, resilient gasketing etc.

Rope: Gaskets, packing, seals, doors, access ports, fabrication etc.

## Rescor® 300

### 1650°C Ceramic paper

Cotronics' ceramic papers are made from asbestos-free high purity Alumina based refractory fibres, with a melting point between 1760°C to 1980°C, offering outstanding high temperature stability. Resistant to thermal shock and corrosion, having excellent electrical resistance, low specific heat and low thermal conductivity.

Can be cut with normal scissors, folded, wrapped, rolled and will mould around sharp corners. Strong free-standing shapes are easily produced. Ideal for high temperature gaskets, combustion furnaces, induction linings, electrical insulators, handling of molten metals, brazing, heat treatment and metal forming operations.

Rescor 300BL is a binderless paper for use in air, vacuum or atmosphere furnaces. Will not burn off organic binders and no fumes associated with initial heat up.

#### Ordering Information:

300-20-1	1/32" x 12" x 300'
300-20-2	1/32" x 24" x 150'
300-20-3	1/32" x 24" x 50'
300-40-2	1/16" x 24" x 100'
300-40-3	1/16" x 24" x 25'
300-80-1	1/8" x 12" x 100'
300-80-2	1/8" x 24" x 50'
300-80-3	1/8" x 24" x 25'
300BL-1	1/8" x 24" 25'
300BL-2	1/16" x 24" 25'
300A	Trial Kit - Contains 6 ft <sup>2</sup> each of Rescor 300 1/32", 1/16", 1/8" and 2 ft <sup>2</sup> of Rescor 300BL.



Properties	Rescor 300
Melting Point (°C)	1760
Service Temp. (°C)	1650
Density (kg/m <sup>3</sup> )	192
Dielectric Constant (@ 10 <sup>3</sup> cps)	1.61
Dielectric Strength (kV/mm)	3.9
Loss Factor	0.017
Thermal Conductivity (W/m °C) @ 260°C	0.055
Thermal Conductivity (W/m °C) @ 537°C	0.086
Thermal Conductivity (W/m °C) @ 815°C	0.130
Thermal Conductivity (W/m °C) @ 1100°C	0.192

## Rescor® 901A

### 1260°C Liquid Hardener and Rigidiser

Rescor 901A ceramic hardener is a clear liquid which penetrates into the surface of porous ceramics to form a strong ceramic bond and harden the surface.

No organics or solvents.

Just brush on and let dry.

Use 901A to prime surfaces before bonding and extend the life and wear resistance of insulation materials. Can be applied directly to transite, marinate, calcium silicate, rock wool, mineral wool and ceramic fibre insulation.

Hardens and extends the life and wear resistance of all porous ceramics.

Melting point is 1760°C.

#### Ordering Information (note: US measures):

901A-1	2 Pints
901A-2	Gallon
901A-3	5 Gallons





## Rescor®

### 1650°C Machinable Ceramics

The range of machinable ceramics outlined here allows design engineers to produce a host of new ceramic parts in-house, without the need of specialist providers.

Rescor ceramics are easy to machine with conventional shop equipment and standard cutting tools. They can be turned, drilled, milled, sawn and even ground.

No more delays, costly time consuming processes or problems with part revisions or modifications.

They offer high temperature stability, excellent electrical characteristics, corrosion, abrasion and chemical resistance.

Can be used up to 1650°C in all oxidising, reducing or vacuum atmospheres.

Select from Alumina Silicate, Non-porous glass ceramic, Macor®, 96% Alumina, High strength non-porous Alumina, Silica, Graphite and Boron Nitride (on request)

Cotronics' Rescor machinable ceramics are readily available in a wide range of rods and plates. Detailed machining instructions are included.

Features	Standard	Impact	Vacuum	High Temp	Hi Strength	Low Exp.	Insulating		Ultra Temp
Product Ref	902	914	915	960	961	962	310M	311	56L
Properties	Alumina	Glass	Macor®	Alumina	Alumina	Borosilicate Glass	Silica Foam	Alumina	Graphite
Temperature Limit (°C)	1150	540	980	1650	1705	260	1650	1430	3000
Compressive Strength (psi)	38,000	40,000	50,000	60,000	380,000	n/a	1,200	500	16,000
Flexural Strength (psi)	14,000	26,000	15,000	38,000	40,500	6,900	520	250	6,500
Thermal Expansion (x10 <sup>-6</sup> /°C)	3.24	9.36	9.36	7.74	6.66	3.24	0.54	5.22	5.58
Volume Resistivity (ohm-cm)	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>15</sup>	10 <sup>8</sup>	10 <sup>9</sup>	10 <sup>8</sup>	n/a
Dielectric Strength (kV/mm)	3.9	18.7	39	7.8	19.5	3.9	3.9	3.9	n/a
Loss Factor (@ 1Mhz)	0.04	0.01	0.003	0.0016	0.001	n/a	0.002	0.02	n/a
Dielectric Constant ( @ 1 Mhz)	5.3	7.5	6.0	9	9	4.6	3.17	2.17	n/a
Thermal Conductivity (W/m°C)	1.296	0.403	1.728	4.608	6.048	1.152	0.187	0.346	+7.2
Porosity (%)	2.9	0	0	10	0	0	63	52	10
Density (kg/mm³)	2322	2600	2520	3000	3820	2230	800	800	1630
Hardness (Mohs Scale)	6	5	5	5	8	4	4	4	3
For Bonding use Resbond	919	940	940	989	989	940LE	940LE	940LE	931
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## Rescor® 902

### 1150°C Alumina Silicate

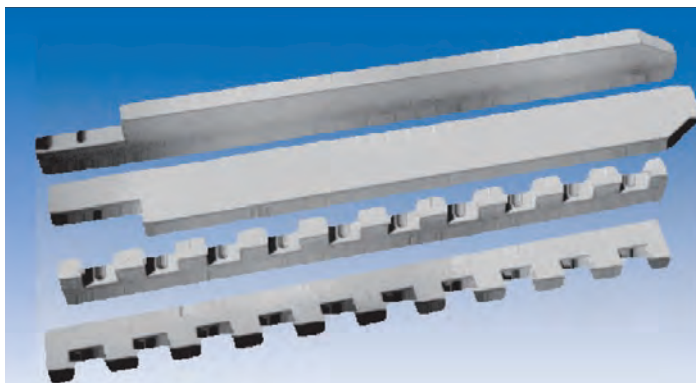
Fine grained ceramic that is readily machinable, providing excellent electronic, mechanical and thermal properties. It is inert to oxidising and reducing atmospheres, resistant to most acids, chemicals, solvents and has excellent thermal shock resistance.

Usable as supplied to 590°C. After a simple heat treatment, after machining at 1040°C, hardens and extends the temperature capability up to 1150°C.

Ideal for rapid prototypes, fabrication of electrical insulators, furnace components, brazing, soldering, welding fixtures etc.

#### Ordering Information:

Sheet Sizes	Rod Sizes
902-1 1/4" x 6" x 6"	902-14 1/4" x 6"
902-1A 1/4" x 4" x 9.5"	902-15 1/2" x 9.5"
902-3 1/2" x 4" x 9.5"	902-16 3/4" x 9.5"
902-4 1/2" x 6" x 6"	902-17 1" x 9.5"
902-6 3/4" x 4" x 9.5"	902-18 1.5" x 9.5"
902-7 3/4" x 6" x 6"	902-19 2" x 9.5"
902-9 1" x 4" x 9.5"	902-19A 2.5" x 9.5"
902-10 1" x 6" x 6"	902-20 3" x 9.5"
902-12 2" x 4" x 9.5"	902-50 3.5" x 9.5"
902-13 2" x 6" x 6"	902-24 4" x 9.5"
902-22 1.5" x 6" x 6"	902-Kit Trial Kit
902-23 1.5" x 4" x 9.5"	
902-25 1/4" x 9.5" x 9.5"	
902-26 1/2" x 9.5" x 9.5"	
902-27 1" x 9.5" x 9.5"	



Properties	Rescor 902
Melting Point (°C)	1760
Service Temp. (°C)	1150
Compressive Strength (psi)	38,000
Flexural Strength (psi)	14,000
Thermal Conductivity (W/m °C)	1.296
Dielectric Strength (kV/mm)	3.9
Volume Resistivity (ohm-cm)	10 <sup>14</sup>
Dielectric Constant (@ 1 Mhz)	5.3
Density (kg/m³)	2322
Loss Factor (@ 1 Mhz)	0.04

## Rescor® 914

### 430°C Glass Ceramic

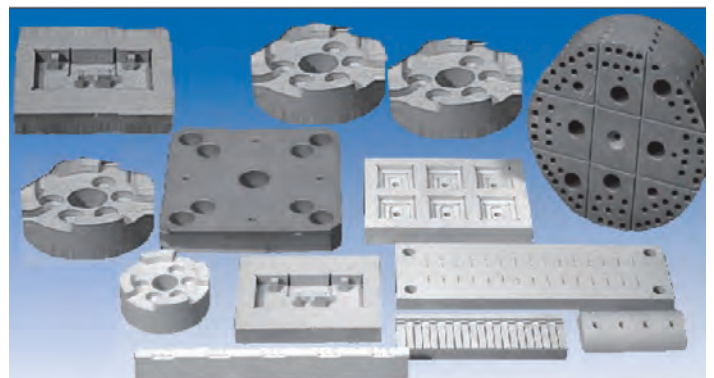
A dense and vacuum tight, glass ceramic composite that is readily machinable, with no post machining heat treatment required.

Inert to oxidising and reducing atmospheres and usable to 540°C maximum. Offers excellent mechanical and electrical properties and has a dielectric strength of 18kV/mm.

Can be metalised and soldered. Low thermal conductivity, high impact and mechanical strength make it an ideal high temperature material. A budget alternative to Macor® if temperatures do not exceed 540°C.

#### Ordering Information:

Sheet Sizes	Rod Sizes
914-1 1/16" x 12" x 18"	914-22 1/4" x 12"
914-4 1/8" x 9" x 12"	914-25 1/2" x 12"
914-5 1/8" x 12" x 18"	914-28 3/4" x 12"
914-9 1/4" x 9" x 12"	914-31 1" x 12"
914-10 1/4" x 12" x 18"	914-32 1.25" x 12"
914-15 1/2" x 12" x 18"	
914-15A 1/2" x 9" x 12"	914-TK Trial Kit
914-17 3/4" x 12" x 18"	
914-17A 3/4" x 9" x 12"	
914-19 1" x 12" x 18"	
914-19A 1" x 9" x 12"	



Properties	Rescor 914
Maximum Service Temp. (°C)	540
Continuous Service Temp. (°C)	430
Compressive Strength (psi)	40,000
Flexural Strength (psi)	26,000
Thermal Conductivity (W/m °C)	0.403
Dielectric Strength (kV/mm)	18.72
Volume Resistivity (ohm-cm)	10 <sup>14</sup>
Dielectric Constant (@ 1 Mhz)	7.5
Density (kg/m³)	2600
Loss Factor (@ 1 Mhz)	0.01

## Rescor® 915

### 980°C MACOR® Glass Ceramic

A dense vacuum tight, glass ceramic composite that is readily machinable and usable up to 980°C. Can be ground, sawn, turned, milled, drilled etc. Will provide dense zero porosity parts in-house.

Has excellent electrical properties even at high frequencies. Use in critical medical and high vacuum applications.

No post machining heat treatments required.

MACOR is a registered trademark of Corning Glass.

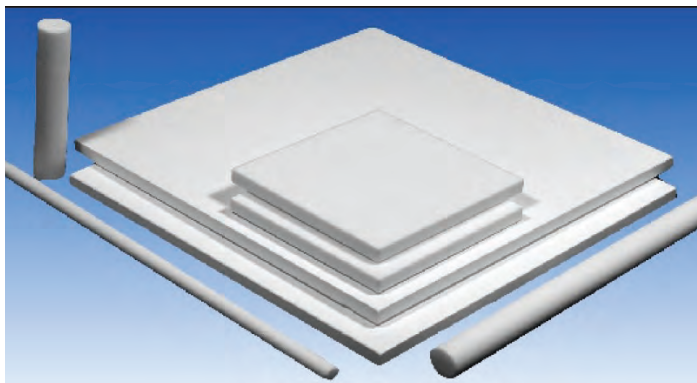
#### Ordering Information:

##### Sheet Sizes

915-1	1/4" x 3" x 3"
915-2	1/4" x 6" x 6"
915-3	1/2" x 3" x 3"
915-4	1/2" x 6" x 6"
915-5	3/4" x 3" x 3"
915-6	3/4" x 6" x 6"
915-7	1" x 3" x 3"
915-8	1" x 6" x 6"
915-17	1" x 1" x 3"
915-16	2" x 2" x 3"
915-TK	Trial Kit

##### Rod Sizes

915-9	1/4" x 12"
915-10	1/2" x 6"
915-11	1/2" x 12"
915-11A	3/4" x 12"
915-12	1" x 6"
915-13	1" x 12"
915-18	2" x 3"



Properties	Rescor 915
Maximum Service Temp. (°C)	980
Compressive Strength (psi)	50,000
Flexural Strength (psi)	15,000
Thermal Conductivity (W/m °C)	1.728
Dielectric Strength (Kv/mm)	39
Volume Resistivity (ohm-cm)	10 <sup>14</sup>
Dielectric Constant (@ 1 Mhz)	6.0
Density (kg/m³)	2520
Loss Factor (@ 1 Mhz)	0.003
Modulus of Elasticity (x10 <sup>9</sup> )	9.3

## Rescor® 960

### 1650°C Ultra High Temperature

Rescor 960 is a 96% Alumina, machinable ceramic that is usable continuously to 1650°C, offering the convenience and economy of an in-house capability for Alumina parts.

The chemical, thermal and electrical properties are equivalent to standard high performance Alumina ceramics.

Use Rescor 960 hardener (a clear ceramic impregnant) to harden and increase the wear resistance of the 960 surface. Just apply and cure at 315°C.

#### Ordering Information:

##### Sheet Sizes

960-14	1/4" x 6" x 6"
960-15	1/2" x 6" x 6"
960-16	3/4" x 6" x 6"
960-18	5/8" x 6" x 6"
960-K	Trial Kit
960-H	Hardener-Pint

##### Rod Sizes

960-1	1/4" x 6"
960-3	1/2" x 12"
960-4	5/8" x 12"
960-5	3/4" x 12"
960-7	1" x 12"
960-12	1.5" x 12"
960-9	2" x 12"
960-10	2.5" x 12"
960-11	3" x 12"
960-13	3.5" x 12"
960-13A	3.5" x 6"



Properties	Rescor 960
Maximum Service Temp. (°C)	1650
Compressive Strength (psi)	60,000
Flexural Strength (psi)	38,000
Thermal Conductivity (W/m °C)	4.608
Dielectric Strength (Kv/mm)	7.8
Volume Resistivity (ohm-cm)	10 <sup>14</sup>
Dielectric Constant (@ 1 Mhz)	9.0
Density (kg/m³)	3000
Loss Factor (@ 1 Mhz)	0.0016
Thermal Expansion (x10 <sup>-6</sup> /°C)	7.74



## Rescor® 961

### 1705°C High Strength, 99.8% Alumina

Rescor 961 is a high strength, zero porosity, extremely wear resistant ceramic, that can be machined only with special tooling. No additional heat treatment required.

This grade of Alumina has the chemical, thermal and electrical resistance required for applications in the electrical, electronic, metallurgical, fixture and vacuum industries.

Rescor 961 can be bonded with Resbond 989 or 903HP.

#### Ordering Information:

##### Rod Sizes

961-10	1/8" x 12"
961-11	1/4" x 12"
961-12	5/16" x 12"
961-13	3/8" x 12"
961-14	1/2" x 12"
961-9	3/4" x 12"

##### Bar Sizes

961-15	1/8" x 1/8" x 12"
961-16	1/4" x 1/4" x 12"

##### Tube Sizes (OD x ID x L)

961-1	1/8" x 1/16" x 12"
961-2	3/16" x 1/8" x 12"
961-3	1/4" x 1/8" x 12"
961-4	1/2" x 3/8" x 12"
961-5	3/4" x 1/2" x 12"

##### Twin Tube Sizes (OD x ID)

961-6	0.125" x .040"
961-7	0.188" x .063"
(two holes within diameter, both tubes 18" long)	

##### Square Sizes

961-20	0.025" x 4.5" x 4.5"
961-22	0.040" x 4.5" x 4.5"
961-21	0.060" x 4.5" x 4.5"

##### Disc Sizes (Thick x Dia.)

961-17	0.094" x 2"
961-18	0.156" x 4"
961-19	0.188" x 6"



## Rescor® 962

### 260°C Borosilicate Glass

Rescor 962 is a high strength, zero porosity, Borosilicate Glass. It is extremely resistant to most chemicals and solvents, it can be machined with glass cutting tools and used continuously up to 260°C.

It is clear and transparent making it ideal for use in many applications. Easily bonded with Duralco 4463 or Resbond 940LE adhesives.

#### Ordering Information:

##### Rod Sizes

962-10	0.157" x 12"
962-11	0.236" x 12"
962-12	0.321" x 12"
962-13	0.5" x 12"

##### Square Sizes (Thick x W x L)

962-20	0.12" x 4" x 4"
962-22	0.25" x 4" x 4"
962-21	0.37" x 4" x 4"

##### Disc Sizes (Thick x Dia.)

962-17	0.25" x 2"
962-18	0.25" x 4"
962-19	0.25" x 6"

##### Tube Sizes (OD x ID x L)

962-1	0.25" x 0.16" x 12"
962-2	0.50" x 0.31" x 12"
962-3	0.75" x 0.50" x 12"



Properties	Rescor 961
Maximum Service Temp. (°C)	1705
Compressive Strength (psi)	380,000
Flexural Strength (psi)	40,500
Thermal Conductivity (W/m °C)	6.048
Dielectric Strength (Kv/mm)	19.5
Volume Resistivity (ohm-cm)	10 <sup>15</sup>
Dielectric Constant (@ 1 Mhz)	9
Density (kg/m³)	3820
Loss Factor (@ 1 Mhz)	0.001
Modulus of Elasticity (x10 <sup>9</sup> )	50

Properties	Rescor 962
Maximum Service Temp. (°C)	260
Compressive Strength (psi)	n/a
Flexural Strength (psi)	6,900
Thermal Conductivity (W/m °C)	1.152
Dielectric Strength (Kv/mm)	3.9
Volume Resistivity (ohm-cm)	10 <sup>8</sup>
Dielectric Constant (@ 1 Mhz)	4.6
Density (kg/m³)	2230
Loss Factor (@ 1 Mhz)	n/a
Modulus of Elasticity (x10 <sup>9</sup> )	64

## Rescor® 310M

### 1650°C Ceramic Foam Blocks

Composed of over 99% pure fused Silica ceramic with a temperature withstand of 1650°C. Features low thermal expansion, high thermal shock resistance, low thermal conductivity and high thermal reflectance.

White hot, 1100°C ceramic foam parts can be immersed in water without cracking. Easily cut, sawn and drilled.

#### Ordering Information:

Rescor 310M-1	4.5" x 6" x 9"
Rescor 310M-2	4.5" x 9" x 12"
Rescor 310M-3	4.5" x 12" x 18"
Rescor 310-4	Trial Kit (misc. pieces)

## Rescor® 311

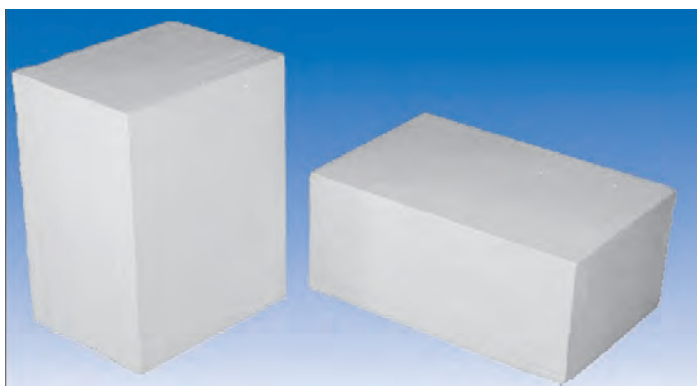
### 1430°C Ceramic Blocks

Alumina Silica ceramic, withstands temperatures to 1430°C. Used for applications where the strength and fine grain structure of Rescor 310M foam is not required.

Larger shapes can be produced by bonding blocks together using 901A hardener and 7020 ceramic bonding putty. These assemblies can then be machined to final sizes and shapes. Also available as Rescor 740, a unique castable ceramic foam.

#### Ordering Information:

Rescor 311-1	2.5" x 4.5" x 9"
Rescor 311-2	2 pack
Rescor 311-3	4 pack



Properties	Rescor 310M	Rescor 311
Maximum Service Temp. (°C)	1650	1430
Compressive Strength (psi)	1,200	500
Flexural Strength (psi)	520	250
Thermal Conductivity (W/m °C)	0.187	0.346
Dielectric Strength (kV/mm)	3.9	3.9
Volume Resistivity (ohm-cm)	10 <sup>9</sup>	10 <sup>8</sup>
Dielectric Constant (@ 1 Mhz)	3.17	2.17
Density (kg/m³)	800	800
Loss Factor (@ 1 Mhz)	0.002	.002
Porosity (%)	63	52

## Rescor® 56L

### 3000°C Ultra High Temperature

Rescor 56L Graphite is a fine grain graphite. Easily machined to close tolerances and will not warp, shrink or crack due to thermal stress. Will not wet by glass or metal oxides.

Has high strength and its unique grain structure makes it ideal for all purposes. Can be used to 315°C to 430°C in air atmospheres and up to 3000°C in inert atmospheres.

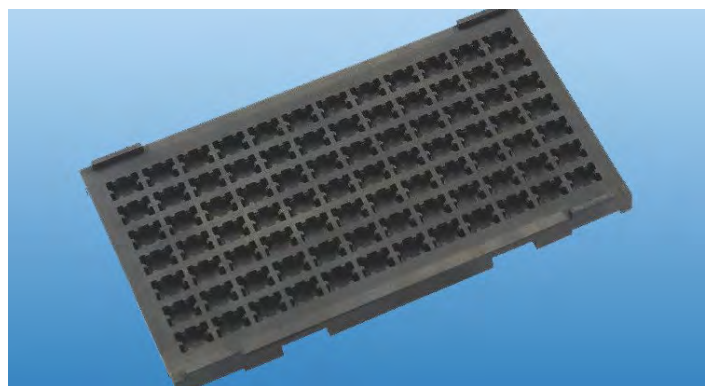
Ideal for semi conductors, fixtures, hot pressing dies, glass to metal, seals, heating elements, crucibles, casting precious metals, forming and handling glass, etc.

Custom sizes are available upon request.

For bonding use Resbond 931 graphite adhesive.

#### Ordering Information:

Sheet Sizes	Rod Sizes
56L-1 1/4" x 6" x 6"	56L-5 1/4" x 12"
56L-2 1/2" x 6" x 6"	56L-6 1/2" x 12"
56L-3 1" x 6" x 6"	56L-7 1" x 12"
56L-4 1" x 12" x 12"	56L-8 2" x 12"



Properties	Rescor 56L
Maximum Service Temp. (°C)	3000
Compressive Strength (psi)	16,000
Flexural Strength (psi)	6,500
Thermal Conductivity (W/m °C)	>7.2
Dielectric Strength (kV/mm)	n/a
Volume Resistivity (ohm-cm)	n/a
Dielectric Constant (@ 1 Mhz)	n/a
Density (kg/m³)	1630
Loss Factor (@ 1 Mhz)	n/a
Thermal Expansion (x10 <sup>-6</sup> /°C)	5.58

## Rescor® 700 Series

### Castable Liquid Ceramic

Rescor castable ceramics are available in six refractory compositions offering engineers a broad selection of properties and performance characteristics. Select from Fused Silica, Zirconium Oxide, Silicon Carbide, Alumina and low density Ceramic Foam.

Just mix the ceramic powders with their activators and pour into any non-absorbent moulds.

Rescor castable ceramics harden overnight to produce highly detailed ceramics, usable to 2200°C

They offer excellent resistance to high temperature, thermal shock, molten metals, oxidising and reducing atmospheres, erosion, most acids and alkalies.

Features	Insulating Foam	Shock Resistant	Ultra Temp.	Corrosion Resistance	General Purpose	High Purity
Product Ref	740	750	760	770	780	RTC-60
Properties	Al <sub>2</sub> O <sub>3</sub> -SiO <sub>2</sub>	SiO <sub>2</sub>	ZrO <sub>2</sub>	SiC	Al <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>
Maximum Temperature (°C)	1260	1480	2200	1480	1650	1790
Density (kg/m³)	641	1762	4005	2322	2884	2804
Shrinkage (as cast) %	0.50	0	0	0	0	0
Shrinkage (@ 540°C) %	1.00	1.30	1.00	1.50	1.00	1.25
Compressive Strength (psi)	1500	6000	4000	6000	6000	2500
Modulus of Rupture (psi)	900	1500	1200	1500	1800	1000
Thermal Expansion (x10 <sup>-6</sup> /°C)	8.1	0.54	10.08	8.1	7.2	7.2
Thermal Conductivity (W/m°C)	0.144	0.576	0.936	4.32	1.44	1.44
Dielectric Strength (kV/mm)	3.9	3.9	n/a	n/a	7.8	6.8
Volume Resistance (ohm-cm)	10 <sup>9</sup>	10 <sup>9</sup>	n/a	n/a	10 <sup>9</sup>	10 <sup>10</sup>
Mix Ratio (Base:Activator)	100:62	100:28	100:18	100:24	100:24	100:10
Working Time (mins)	20	20	20	20	20	25
Colour	Tan	White	Tan	Black	White	White
Shelf Life (months)	6	6	6	6	6	6
Moisture Resistance	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent



#### Ordering Information:

##### Insulating Foam Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>

740-1	4.5kg
740-2	22.7kg
740-3	45.4kg

##### General Purpose Al<sub>2</sub>O<sub>3</sub>

780-1	4.5kg
780-2	22.7kg
780-3	45.4kg

##### Shock Resistant SiO<sub>2</sub>

750-1	4.5kg
750-2	22.7kg
750-3	45.4kg

##### High Purity Al<sub>2</sub>O<sub>3</sub>

RTC-60-2R*	4.5kg
RTC-60-2F*	4.5kg
RTC-60-3	Kit 2.3kg of both Regular and Fine
*where	R = regular F = fine

##### Ultra Temperature ZrO<sub>2</sub>

760-1	4.5kg
760-2	22.7kg
760-3	45.4kg

##### Corrosion Resistance SiC

770-1	4.5kg
770-2	22.7kg
770-3	45.4kg



## Resbond® 907TS Series

### 1150°C Thread Locker & Pipe Sealant

Viscosities and strengths to meet your toughest sealant needs for use from -150°C to 1150°C.

Easy to use with no measuring, or mess and will not run or drip while applying. Economical as just one bottle provides up to 2000 applications. Room temperature cures save time and money with no costly treatments - just apply and let dry.

High temperature stability, will not soften or decompose at elevated temperatures. High bond strength offers excellent adhesion, sealing most metals and ceramic parts.

Penetrates fine openings to provide electrical and corrosion resistance.

Packaged in convenient 4 oz applicator bottles, making it ideal for use on set screws, fasteners, bolts and pipe threads.

Removable with hand tools (under most conditions).

## Resbond® 507TS GEL

### 260°C Thread Locker & Pipe Sealant

The perfect alternative to traditional anaerobic sealants that are limited to 150°C. Easy to use and thermally stable, prevents vibration loosening and seals pipes and threads.

All purpose two part epoxy Teflon® sealant, just mix (100 parts resin to 15 parts hardener) and apply. Cures in 4 hours at room temperature to form thermally stable, electrically insulating and chemically resistant bonds.

Features	Low Viscosity	Standard	High Strength	High Viscosity	Epoxy Teflon
Properties	907TS Green	907TS Blue	907TS Red	907TS Gold	507TS GEL
Typical Uses	Penetrates fine openings	General purpose	Prevents vibration and loosening	Fills large gaps and grooves	General purpose
Viscosity (cps)	2,000	5,000	7,000	15,000	35,000
Shear Strength (PSI)	370	400	450	500	1,200
Breaking Torque (inch-lbs.)	80	180	250	300	500
Gap Fill (mm)	0.076	0.127	0.254	0.762	0.254
Typical Applications Include	Small set screws, adjustment screws, fasteners and instrumentation	Medium screws, nuts, bolts, pipe threads and fittings.	Large fasteners and set screws, pipe threads, studs and bearings.	For difficult applications, flanges, bolts, pipe threads and large nuts.	All purpose two component epoxy Teflon for difficult applications.



#### Ordering Information:

- 907TS-1** 4 oz applicator bottle  
Specify colour (Green, Blue, Red, Gold)
- 907TSCP** Case pack 12 x 4 oz bottles
- 907TS-TK** Trial Kit 4 x 1 oz bottles
- 507TS-1** Applicator kit

## Hints and Tips

### Mixing and Measuring Adhesives

Re-stir all products before weighing or dispensing. Carefully weigh out the resins and hardeners separately before mixing. Mix thoroughly and completely before using (use a minimum mix of at least 25 grams to ensure a homogenous mixture).

Improper measuring or mixing can cause materials not to cure, soft spots, air voids on the surface, sticky surfaces, softening at elevated temperatures and changes in chemical or electrical resistance.

### Bonding Dissimilar Materials

Select an adhesive with a thermal expansion coefficient that closely matches the materials to be bonded. When possible select a flexible epoxy. Clean dirt, oils, greases and mechanically roughen the surfaces prior to bonding. Cure materials at room temperature and at 120°C.

### Recommended Bond Line Thickness for Adhesive Bonding

For standard epoxy and ceramic adhesives a bond line thickness of 5 to 8 mils (0.127mm to 0.203mm) will produce excellent results. For non-sag putties (epoxy or ceramic), bonds of 0.020" (0.50mm) or more can be used. To form a thick layer or section, apply putty in several layers curing between each application.

### Joint Design and Bond Strength

Butt joints are usually the weakest, inserted joints (tongue and groove, rod into a tube, providing a mechanical reinforcing), are the strongest. For repair and difficult applications, use a metal or ceramic cloth buried in the glue line for additional reinforcement.

### Bonding to Teflon, Nylon, Polyolefin and Similar Plastics

Specific surface treatments and/or etching are required for bonding these plastics. The range offers flexible and activated epoxies that form strong adhesive bonds to many of these difficult-to-bond materials.

### Preventing Flow of an Adhesive from a Joint

Select an adhesive with high viscosity or with thixotropic properties and use just enough adhesive to completely fill the gap between the two surfaces to be bonded.

### Thinning Adhesives for Application

Epoxy formulations can be thinned with mild heat or epoxy thinner 105RT to ease flow, create a thinner bond line or facilitate encapsulation.

### Removing Bubbles in Potting Materials

You can reduce the amount of entrapped air by warming epoxies prior to application or by vacuum degassing (apply pressure of 29 in Hg for 2 minutes and then release).

### Working with Conductive Adhesives

Electrically and Thermally conductive adhesives will provide optimum results after a post cure for 2 hours at 120°C. Electrically conductive materials are also available in flexible versions to accommodate bonding substrates with different thermal expansions.

### Cracking in Ceramic Adhesives and Castable Ceramics

Cracked and weak castings, encapsulations or adhesive bonds can occur when using ceramic materials if excess activator or additional water has been added to the uncured mixtures. Check the mix ratio that was used when mixing the materials.

### Accelerating Cure Time

The best way to shorten the cure cycle is to raise the temperature. Typically most systems can be quickly cured at 120°C. One should check each product's data sheet or label for specific instructions and recommendations.

### Modifying Existing Formulations

The manufacturer can adjust such formulations to provide variables such as viscosity, gel time, curing characteristics as well as lap shear strength, peel strength, flexibility, chemical stability, heat resistance, impact strength, colour etc.

### Special Packaging for Production Applications

We can supply materials in pre-measured units and in bulk quantities to facilitate the use of these systems in any production facility or field application.

## Epoxy Adhesives

Outlined below are some key points to follow during the application of our epoxy adhesives and compounds. For more information please contact us.

### Preparation

1. Clean surfaces of all grease, oil, dirt, old coatings, rust etc. Roughen surface to improve adhesion. For best results use Resbond 105RS solvent or 105RP surface preparation.
2. Re-stir all resins and hardeners to ensure a uniform, homogenous product. Warming resins to 35°C - 50°C will reduce the viscosity and ease mixing.

### Mix Ratio

3. All measurements are by weight. Follow instructions supplied on the product label for the exact mix ratios. NOTE: Weight = (total weight) - (weight of container).
4. Weigh out the resin and hardener into separate clean containers. Combine the resin and hardener. Mix slowly and thoroughly, making sure to scrape the sides of the container to ensure complete mix. Do not whip air into mix!
5. Apply and heat cure as directed, if applicable.

### Vacuum Degassing

6. Special additives have been incorporated into these Epoxy systems to eliminate the need for vacuum degassing. Warming resin and letting the mixture stand for several minutes before use normally removes most of any remaining trapped air. Vacuum degassing need only be employed for critical applications. NOTE: The use of warmed resin may reduce working time.

### Adhesive Applications

7. Apply with a trowel or dispensing syringe. Use bond lines from 0.13mm to 0.25mm. Disposable syringes are available, please contact us.

### Potting and Casting Applications

8. Pour slowly, in a thin continuous stream, to allow the air to escape. The material should be allowed to flow around and under components. NOTE: A fast pour may trap air pockets.

### Curing

9. Follow the curing procedures listed on product labels for these systems. Optimum high temperature properties are only obtained when following the recommended cure cycles.
10. Post cure for 4 hours at 90°C to 120°C to enhance any room temperature curing system's properties.

CAUTION: See MSDS for safety instructions.

Mixing batches over 50-100 grams can create excessive heat in some systems.

## Ceramic Adhesives

Outlined below are some key points to follow during the application of our ceramic adhesives and compounds. For more information please contact us.

### Preparation of Non-Porous Materials

1. Clean surfaces of all grease, oil, dirt, old coatings, rust etc. Roughen surface to improve adhesion.
2. For best results degrease with Resbond 105RS solvent and dry thoroughly.

### Preparation of Porous Materials

1. Clean surfaces of all grease, oil, dirt, old coatings, rust etc. Roughen surface to improve adhesion. For best results use Resbond 105RS solvent or 105RP surface preparation.
2. Moisten the surface to be bonded with a solution of 50% ceramic thinner and 50% clear water (Note: Use the thinner for the specific adhesive system selected).

### Mix Ratio

3. Pre-mix adhesive thoroughly prior to use, following instructions on the label. DO NOT whip air into the mix. For two component systems, mix the powder and activator according to weight ratio on the label.

### Apply Adhesive

4. Use a spatula, brush or by dipping. Completely wet surfaces. IMMEDIATELY press the surfaces together. If necessary clamp or fix to maintain uniform distances while curing. Typically a joint gap of between is 0.01" (0.25mm) to 0.02" (0.50mm) is recommended. Excess adhesive can be removed with a damp cloth.

Note: Bond testing with sample pieces for your specific application is recommended. Contact us for recommendations if unsure.

### Curing

5. Let joint air set 1 to 4 hours.
6. Cure a minimum of 2 hours at 90°C.
7. Avoid excessively fast heating. It may cause adhesive to bubble and form a weak bond.

Note: Always follow the product's specific instructions as shown on the product label. These products will not out-gas after a complete cure.

### Post Cure

8. To develop maximum strength, solvent and moisture resistance, post cure for 1 hour at 120°C followed by 1 hour at 315°C to 370°C.

Note: A second cure will provide maximum strength, solvent and moisture resistance.

### Potting Applications

9. For potting applications request instructions for our ceramic potting materials.



## Viscosity Comparison

Approx. Viscosity	Material
1	Water
10	Kerosene
100	Corn Oil
200	Maple Syrup
500	Castor Oil
1,000	Glycerin
3,000	Honey
10,000	Molasses
50,000	Ketchup
250,000	Peanut Butter
1,000,000	Shortening

## Comparative Particle Size

Mesh	Microns	mm	Inches
4	4760	4.76	0.185
8	2380	2.38	0.093
16	1190	1.19	0.046
20	840	0.84	0.033
40	420	0.42	0.017
50	297	0.29	0.012
80	177	0.17	0.007
100	149	0.14	0.006
140	105	0.10	0.004
200	74	0.07	0.003
270	53	0.05	0.002
325	44	0.04	0.0017
400	37	0.03	0.0015

## Hardness Durometer

Material	Shore A	Shore D
Gum Eraser	30	-
Pink Eraser	40	-
Rubber Stamp	50	15
Pencil Eraser	60	-
Rubber Heel	70	30
Rubber Sole	80	-
Printer Roller	90	-
PVC	100	55
Fir Plywood	-	78
Hardwood	-	86
Glass	-	90

## Typical Coverage Putties - Adhesives - Coatings

Coverage (F <sup>2</sup> /Qt.)	Film Thickness (inches)
300	0.001
150	0.002
100	0.003
60	0.005
45	0.007
30	0.010

## Bead Length Half Round Bead dispensed from a 11 oz Caulking Cartridge

Bead Width	Approx Length
1/4"	80 ft
3/8"	37 ft
1/2"	21 ft
5/8"	13 ft

## Conversion Table

Multiplication Factors
<b>Area</b>
in <sup>2</sup> x 6.45 = cm <sup>2</sup>
ft <sup>2</sup> x 0.093 = m <sup>2</sup>
<b>Density</b>
lb / ft <sup>3</sup> x 16.02 = kg/m <sup>3</sup>
lb / in <sup>3</sup> x 0.016 = g/cm <sup>3</sup>
<b>Heat Loss</b>
Btu / hr ft <sup>2</sup> x 3.155 = W/m <sup>2</sup>
Btu / hr ft <sup>2</sup> x 0.271 = g cal/hr cm <sup>2</sup>
<b>Length</b>
in x 2.54 = cm
in x 25.4 = mm
ft x 0.3048 = m
<b>Thermal Conductivity</b>
Btu in / ft <sup>2</sup> °F x 0.144 = W/m °C
W / m°C x 6.93 = Btu in/hr ft <sup>2</sup> °F
<b>Thermal Expansion</b>
x10 <sup>-8</sup> / °F x 1.8 = x10 <sup>-8</sup> / °C
<b>Dielectric Strength</b>
Volts/mil x 0.039 = kV/mm
<b>Volume</b>
in <sup>3</sup> x 16.39 = cm <sup>3</sup>
in <sup>3</sup> x 0.0283 = m <sup>3</sup>
<b>Temperature</b>
°C = (5/9) (°F -32)
°F = (9/5) (°C +32)
<b>Weight</b>
lbs x 454 = gm
lbs x 0.454 = kg

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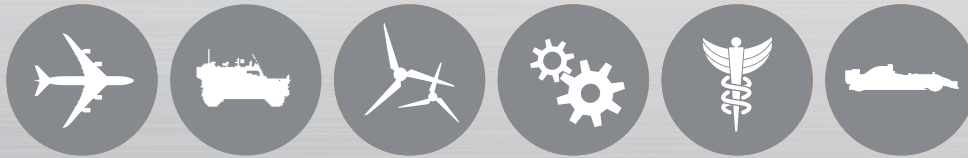
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## Specialist Distributor of High Performance Electrical Interconnect & Electro-Mechanical Components and Services.

Working closely with suppliers and manufacturers worldwide we offer a comprehensive range of high performance components and associated products for the Aerospace, Defence, Energy, Industrial, Medical and Motorsport markets. Our experienced team includes specialists by sector and by product, to provide leading customer service. With immediate access to in excess of 8,000 product lines from an extensive "off the shelf" stock profile for next day delivery as standard, along with flexible MOQ's and pack sizes.

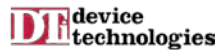
We are fully committed to complying with the latest quality approvals for the customers and markets we serve, including ISO9001:2008 and AS9120:2005.

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